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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and to improve the character of the service rendered to the public.

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PROPOSED NEW STEAMBOAT LINE.

A movement is on foot to form a stock company to build and operate a line of cargo and passenger boats for the Lackawanna-Green Bay Line.

Capt. M. M. Drake, Buffalo, manager of the present line, considers that two steamers of the following general hull dimensions and capacity, would best suit the trade. Hull, 262 feet, 41 foot beam and a tonnage of 2,400, with accommodations for 50 passengers, boats to be so built and classed as to be capable of use on the Atlantic coast during the winter months when considered desirable.

The plan is to form a stock company among Buffalo capitalists and the shippers along the course of Green Bay and Lackawanna Line, including Marinette, and the boats to be ready for service early next season.

MASTERS' AND PILOTS' BILL.

The National Association of Masters and Pilots, which has a large representation on the lakes, has had its most important project rejected by the House Committee on Merchant Marine. It's a measure in the nature of an amendment to the existing statute, and provides that local boards of inspectors shall investigate all acts of incompetency or misconduct committed by licensed officers and that the trial of an accused officer shall be before a jury composed of either masters, pilots or mates. Further, if the accused be an engineer, he must be tried by engineers; if a pilot, by pilots, and so on.

Gen. Grosvenor, chairman of the committee, asked Capt. Perkins, who appeared for the association, whether he would apply this principle to other walks of life, adding:

"Now would you advise trying a doctor accused of malpractice by a jury composed exclusively of doctors?"

"Yes, sir," replied Perkins.

"Well," retorted Grosvenor. "I've tried a great many such cases, and God save me from a doctor tried by doctors, or a woman tried by women."

The committee decided not only to report the bill adversely, but also to make an adverse report on the bill giving masters a lien on vessels as sailors.

WIRELESS TELEGRAPHY.

The Marconi Wireless Telegraph Co. has completed its new station at Saugatuck, near Bridgehampton, L. I. This will supplement the Nantucket stations, furnishing maritime information. The American line has signified its intention of installing the Marconi system now used on the Philadelphia, on board the St. Louis and the St. Paul. The United States coast survey has made arrangements to use the device on board of one of its steamers, and the United States signal corps has signed a contract for its employment in Alaska. The company expects to complete its primary station at South Wellfleet, Cape Cod, for trans-oceanic messages, about June 22.

CHICAGO SHIP CANAL.

Considerable interest is manifested over the contemplated opening of the Mississippi river for ocean traffic to St. Louis, and the conversion of that city into an "ocean port."

Some people at the head of the lakes are wondering just what effect such a move would have on Superior, Duluth and Minneapolis, and the other commercial cities of the northwest, and whether or not it would have a tendency to take the bulk of the trade south, instead of eastward.

Speaking on the subject the Port Collector Mills, at Superior, said recently: "I am of the opinion that the scheme is agitated in anticipation of the building of the Panama canal. James J. Hill is the longest headed transportation man this country has ever seen, and I believe he intends to have the Mississippi river ready for the Oriental trade. It will be a magnificent thing when ocean going steamships from the Orient can be brought into the heart of the American continent, and it will have a lasting effect on our commerce in the east. For the product of the lower Mississippi valley, it will furnish the cheapest and most convenient outlet to all parts of the world, and especially to Asia, by way of the Panama canal."

"But I do not believe that it will affect the traffic of cities as far north as the head of Lake Superior. Europe is still the great wheat consuming country, and the bulk of wheat and flour will flow through the head of the lakes eastward. Neither will it affect the importance of Seattle on the coast as an export city. But it is hard to say just what effect it will have on the cities of the lower Mississippi valley."

"The feasibility of the project is another matter. The Mississippi river is a treacherous stream, liable to change in a night, and it will be a very expensive operation to render it safe for the deep draught ocean vessels."

COMMERCE OF THE WORLD IN 1901.

The following table shows the imports and exports of all countries for which statistics have been received by the Bureau of Foreign Commerce:

Countries.	Imports.	Exports.
United States	\$ 880,421,000	\$1,465,380,900
United Kingdom	2,541,476,100	2,136,048,400
Germany	1,420,150,000	1,130,738,900
France	909,907,800	804,069,800
Switzerland	211,937,600	160,556,600
Belgium	425,690,800	352,666,800
Italy (11 months)	326,708,200	249,232,100
Austria	345,587,000	383,507,600
Spain (11 months)	148,109,400	117,678,600
Bulgaria	13,518,500	15,974,600
Russia (9 months)	205,556,600	272,048,200
Canada b	190,415,000	177,639,000
Mexico b	65,083,400	70,860,400
Brazil (7 months)	49,117,700	94,628,800
Argentina	109,971,100	161,846,000
Uruguay (9 months)	18,797,100	22,352,400
Egypt	75,355,700	77,753,800
British India b	296,772,700	367,642,000
Cape Colony (11 months) ...	87,749,800	44,796,500

a Including foreign and colonial produce, the exports from the United Kingdom amounted to \$1,695,225,810.

b Fiscal year 1900-1901.

BRITISH SHIPPING SUBSIDY.

Sir Robert Giffen, (ex-President of the Statistical Society, and ex-Chief of the Statistical Department of the Board of Trade), testifying last week before the House of Commons Committee on Steamship Subsidies, said the changes in the position of British shipping, compared with those of other countries, was due largely to circumstances apart from subsidization. There had been a diminution of British progress, while elsewhere, especially in Germany, there had been a great advance. The number of American owned ships sailing under the British flag, quite apart from those with the combine recently formed, had largely increased, and was still increasing, and he regarded it as obvious that, notwithstanding the fact that the White Star Line steamers were sailing under the British flag, the United States Government regards them as being American vessels, and would be prepared to defend them, as the property of American citizens.

Sir Robert said he regarded subsidies as a political, rather than an economic question.

THE JAPAN CURRENT.

In one sense the Kuro Siwo, or Japan current, is the most interesting in the world, because many oceanographers believe it was the direct means of peopling America. This much, at least, is certain: If a boat were to be set adrift on parts of the Asiatic coast and survived all storms, the Japan current could be depended upon to carry it across the Pacific and deposit it on the American shore. Such a thing happened almost within the memory of man. In 1832 nine Japanese fishermen were left derelict and unable to find their way back to the shore. They went with the current, and after a drift lasting during several months they were carried to Hawaii.

Trees, torn by storms from the banks of Asiatic rivers, frequently float across the Pacific to the American coast. Between Kakatag and Kyak islands, about 1,200 miles northwest of Seattle, enormous piles of this driftwood cover the beaches. There can be no question of the Asiatic origin of the timber. They are the trunks of the camphor tree, the mango and the mahogany. Logs 150 feet long and eight feet in diameter are frequently found. Many of them are seen floating shoreward, with fantastic roots standing high above the waves. In places the logs are piled twenty feet high. They are generally without bark, which has been peeled off by the waves, and most of them have become white and heavy from impregnation with salt water. As they pile up, the sands drift over them and gradually they sink out of sight, and new beaches are formed. This process has been going on for ages, and the shore line is being steadily extended. Excavations along the beach show that the texture of the buried timber gets harder and harder the further you go, until in some instances petrification has taken place. Other excavations show logs that have turned to coal.

The presence of Siberian driftwood on the shores of Greenland convinced Nansen that his idea of drifting across the Polar sea in the Fram was logical. Great quantities of the wood are annually cast on the coasts of Spitzbergen and Novaya Zembla, and there are tribes of Greenland Eskimos who depend for sledge runners and other wooden implements on the drift from Siberian forests. For years they depended for iron implements on the hoops of casks which came to them over seas.—Theodore Waters in Ainslee's.

TO ORGANIZE MARINE LABOR.

A movement to consolidate all the marine labor interests on the Great Lakes will be started in Chicago this week, when a Marine Labor Council will be formed. It will take in 2,000 workers, including South Chicago, and with the councils to be formed at other ports on the lakes it is expected the total membership will amount to 25,000 men. The unions have already declared favorably on the proposition and each will name three delegates to be present at the meeting Sunday. President M. J. Keefe, of the International Longshoremen's Association of America, is prominent in the promotion of the new movement and is expected from New York to preside at the meeting. As at present planned, grievances of the different unions will be settled through the council instead of by the respective unions involved in the controversy.

The only marine council on the chain of lakes at present is at Milwaukee. This was formed as an experiment upon the recommendations of the tenth annual convention of the International Longshoremen's Association, held in Toledo last July.

The matter of organizing such a council here has been discussed by the marine unions of Toledo at different times and has been the subject of a referendum vote. The closer affiliation of the Marine and Longshoremen's unions for offensive and defensive purposes has been the dream of the I. L. A. for years. The proposed compact includes seamen, marine and dock engineers, firemen and the longshore workers.

ONE point urged by Rear Admiral Charles O'Neil, Chief of the Bureau of Ordnance, U. S. N., against the construction of any additional torpedo boats at this time, is that there are not enough naval officers to take charge of the boats now afloat or building. This objection is pertinent but not conclusive. It would hold with equal force against the additional construction of battleships, cruisers and warships of other types. The thing to do is not to stop building more ships but to devise some means of getting more officers.—Army and Navy Journal.



DULUTH-SUPERIOR.

It seems to be quite true that most of the dry lumber has been shipped east and that which is now in the yards is unseasoned stuff. Buyers are regularly visiting the ports on Lake Superior as well as away out on the Pacific Slope.

James J. Hill, president of the Great Northern railroad, sailed from New York on Wednesday, for Labrador and Greenland, on the yacht Wacouta. He said he would be gone six months, and that the trip was partly for pleasure and partly for scientific investigation.

The Sonora, a sister ship to the Sultana, was launched on Wednesday afternoon, at the yards of the Superior Ship Building Co. The ship is the property of the Superior Steamship Co., controlled by W. P. Rend, of Chicago. She will be in charge of Capt. F. A. Fick, with T. H. Walsh as chief engineer.

On dry-docking the steamer Mataafa a survey showed thirty-five damaged bottom plates, after her stranding on Knife Island reef. Her forefoot was dry with ten fathoms of water under her stern so that she must have strained some while hanging by the snout in such a manner. The necessary work to be done on her will make quite a heavy repair bill.

Word comes from Seattle, Wash., stating that a syndicate of Wisconsin lumbermen, reputed to be backed with capital to the amount of \$1,000,000, is reported to have practically completed negotiations for the purchase of the plant of the Palouse River Lumber Co., at Palouse, one of the largest lumber concerns in the United States. The company has recently made a purchase of 160,000,000 feet of standing timber, and its mill has a cutting capacity of about 6,000,000 feet per year, which it is proposed to increase to 15,000,000 feet.

Grain dealers and shipping interests are interested over the results found after the recent fire at Fort William, Ont., where elevator D was recently enveloped in a scorching fire. This elevator is of steel and is one of the first steel elevators to be subjected to the intense heat of a very hot fire. The fire started in dust and other combustibles, and burned for some time before the flames were extinguished. The heat was so intense that the stringers were warped, but the grain was not damaged. The flames swept around the structure until it was demonstrated that the elevator is fireproof, but the further interesting feature is that practically none of the grain in the tanks was injured, although the structure was subjected to intense heat. It has been claimed that the steel elevators were fireproof and that fire could not injure the grain in them, but this is the first time it has been proven by experience. This fire promises to cause all elevators to be built of steel hereafter.

From the present outlook it is believed that the existing lake lumber rates will be maintained. The recent meeting at Chicago was held for the purpose of taking such action as would prevent a break of lake freight rate for the transportation of lumber. But the lumber men are equally anxious to maintain rates. The consignees of lumber do not care what the lake freight rate is, if they know for a certainty that some competitor is not getting a lower rate than they are paying themselves. The consignee of lumber, who has a considerable quantity already delivered on lower lake docks at \$2.50 a thousand, does not want the rate to drop to \$2.25, for that would affect every dollar's worth of lumber that he owns and have an unfavorable effect on the entire market. The consignees do not begrudge the lumber carriers a profitable rate. All they ask is that the rate be uniform. For that reason the lumber carriers have agreed to lay up enough boats to prevent any such conditions, but all the tonnage required for the movement of lumber will be provided.

In connection with the action of the Lumber Carriers' Association at the meeting in Chicago last week withdrawing part of their fleet from the lumber carrying trade to maintain the \$2.50 rate from the Lake Superior district, shippers are raising the point that the movement is not likely to meet with favor from the longshoremen's unions along Lake Superior. They say that one of the special terms of the agreement that effected the settlement of the strike last spring, was that the Lumber Carriers' Association was to keep the boats coming regularly all summer in order to give the lumber shovers steady employment. It is intimated that the action of the vesselmen in withdrawing tonnage from the market is for the express purpose of forcing the shippers to pay the present going rate, and that, in order to maintain their position, the vesselmen will endeavor to cause a vessel shortage by sending the boats here irregularly. On the other hand,

the vesselmen hold that, having granted the request of the longshoremen for higher wages and because the cost of labor and fuel is higher in general this year, and the price of lumber has advanced materially over the price of last season, they are entitled to the going rate of \$2.50, and any attempt to lower the rate means the cutting off of a fair profit to the vessel owners, if it does not mean a loss. The laying up of the boats will throw about 1,800 men out of employment.

An investigation of the collision between the steamers Hadley and Wilson was begun by the local inspectors of steamboats on Monday. In his report of the accident, Capt. M. Fitzgerald, of the Hadley, states that while headed substantially for each other, the Hadley's helm was starboarded and a signal of two blasts blown to the Wilson. Receiving no answer to this, the engines of the Hadley were stopped and backed in hopes of clearing the whaleback, but the latter ported her helm and swung directly across the course of the Hadley, the collision resulting. Chief engineer John Hogan, of the Hadley, made substantially the same report as to signals. He thought the engine was backing three or four minutes before the boats came together. Wheelman John Welch, of the Hadley, said that the two boats were a mile apart when Captain Fitzgerald gave orders to put the helm hard to starboard and the Hadley gave two blasts which were not answered. Shortly after this the helm of the Wilson was put hard to port. The investigation will be continued until all the evidence is before the inspectors. The work of raising the Hadley has been started. After the cargo has been lightened, temporary repairs will be made on her stem. It is not known yet whether jacketing will suffice, or whether an inside bulkhead will be necessary. Nothing has yet been done on the Wilson. The remainder of the spar has been carried away and a spar buoy with a light was put out to mark the location of the wreck, as it is in the fairway of the entrance to the port.

CHICAGO.

Capt. Carl Johnson, formerly master of the Pretoria, has purchased an interest in the steamer P. J. Ralph and her consorts, the Harold and Connelly Bros.

The steamer Madagascar chartered for wheat on Monday, to Midland, Ont., at 1 3/8 cents from the south branch, or 1 1/4 cents from the north branch at shipper's option.

On Saturday the steamer Milwaukee, the new general cargo boat of the Western Transit Line, was given a trial trip, and reports are that she behaved splendidly. The Milwaukee is expected to depart from Chicago for Buffalo about June 15th.

Officers of the United States revenue cutter Morrill have been busy for several days in the Chicago harbors examining the papers of vessels. Fifty steamers and sailing vessels have been visited and no serious violations of the law have been discovered.

The new ore dock the Chicago & Northwestern Railway Co. has just started to build at Escanaba, will, it is stated, be the largest on the lakes. It will be 2,000 feet long, 70 feet high, and will contain 230 pockets, each with a storage capacity of 160 tons, or a total of 51,200 tons.

The steamer Starrucca, of the Erie Line, failed to turn sharply enough in passing through the Wells street bridge bound up the south branch of the river on Monday and she ran into a nest of laid up tug boats belonging to the Great Lakes Towing Co. No particular damage was done.

Organized labor at South Chicago has taken a hand in the tug strike. Lumber handlers there early in the trouble sent a delegation to Chicago, to convey their sympathy to the strikers. Now they have refused to handle lumber from vessels brought into South Chicago by the two trust tugs at work there.

The People's Transit Co. make a rate of \$1 to White Lake resorts, and corresponding figures to other east shore points as far north as Traverse City. The speed developed by the new passenger steamer Frontenac has enabled the line to include a large number of points in its schedule. Two trips weekly are being made until June 21, when the full summer schedule of three trips will be inaugurated.

The drainage board has announced that the Chicago river is to be widened from sixty to 110 feet in the section of the south fork of the south branch, having a rock bottom. The cost of the work will approximate \$13,000. The channel at the point in question has given much trouble to the coal companies having docks on the stream in that vicinity, and it is upon the petition of these interests that the board took action.

The wooden steamer George G. Hadley, which sunk the whaleback at Duluth last Saturday, has probably had more bad luck than any steamer now in the service. With her owner W. P. Rend, of this city on board she came near being lost the first season in a Lake Superior gale. Early this season the steamer was so badly battered in another Lake Superior gale that \$15,000 had to be expended in fixing her up. This was her first trip since coming out of drydock after that disaster. The whaleback steamer Thomas Wilson belonged to the Pittsburg Steamship Co., the trust fleet, and was commanded by Capt. M. C. Cameron, with C. A. Fletcher as chief engineer. She was

308 feet long, by 38 feet beam, and 24 feet depth of hold, was rated A1, and built at West Superior in 1892. The George G. Hadley was owned by Rend & Co., Chicago, and was commanded by Capt. M. Fitzgerald, with John H. Hagan as chief engineer. She was built in 1889, at West Bay City, and was 288 feet long by 40 feet beam, and 22 feet deep, classed as A1 1/2.

Investigation of the collision between the steamer Westcott and the tug Leslie, in the Chicago river on May 5, last, was begun by the local board of steamboat inspection yesterday. Capt. Gray, of the tug Leslie, is complainant, and in his charges against Capt. H. L. Wang, of the Westcott, he alleges that the accident was due to carelessness on the part of the latter. Testimony of the crew of the Westcott was taken, and when completed the Local Inspectors, Messrs. Richardson and Moore, will take the case under advisement.

Michael Burns, the ex-engineer of the Rita McDonald, was cited to appear before the local inspectors on Monday, to answer charges preferred against him by local manager J. R. Sinclair, of the Great Lakes Towing Co. The charges are similar in character to those preferred by Messrs. Elphicke and Newman against other tugmen who are alleged to have conspired to hinder commerce by refusing to operate tugs of the Great Lakes Towing Co. This harrassing and annoying action of local steamboat inspectors gives the appearance of them working for the, or in the interests, of the tug owners and against the licensed men who do the work on the river. It would be thought more regular if the inspectors showed a disposition to protect the licenses they had themselves issued, instead of trying to snatch them back.

BUFFALO.

Capt. C. A. Abbey, of New York, Superintendent of the Construction of the Government Life-Saving Service, was here this week, inspecting the work on the new station. The Life-Saving Service is one of the best managed branches of the Treasury Department.

It is now thought that the breakwater on the south side of the harbor towards Stony Point will not be completed this year. Delays have been caused by the continued storms which have steadily interfered with the work. This may postpone the opening of the new ship canal at Stony Point by the Lackawanna Steel Co. next spring.

The Ontario Power Co. has commenced operations on extensive new works at Niagara Falls, Ont., and a large force of men has been put to work near Chippewa. This section of the work consists of a canal 100 ft. wide and 20 ft. deep, running from Welland river in the village of Chippewa to near the bluff above the Dufferin Islands. The canal is 1 1/4 miles in length, and empties into a tunnel 1/2 mile long. The work of the section in the park was commenced on March 24th last, and is well under way.

A large drydock, representing an outlay of \$100,000 and a modern shipyard at much greater cost, is the assured outcome of the incorporation at Albany this week, of the Empire Ship Building Co., of this port. The incorporators are: John Bateman, James McDougall, A. H. Palmer, of Buffalo; John S. Watterson, of Cleveland. The slip connecting the two islands at the foot of Genesee street and known as the Clifford docks will be the location of the new dry-dock. The company has secured a 99 year lease on the islands. A mammoth steel machine shop will be begun at once on the property. It is said that the new concern has already signed contracts to construct eight steel tugs to cost \$30,000 each. The company, it is expected, will employ 800 men by next season.

Capt. John Davis, formerly master of the Mohawk, of the Western Transit Line, has been selected to take command of the Milwaukee, and he will have as chief engineer Michael J. Laney, and first mate Thomas Dunn. By the appointment of Capt. Davis to the new steamer and following his advancement by the regular promotion of nearly all the other captains of the Western Transit fleet, a general shift results. Capt. John Fisher, of the Syracuse goes to the Mohawk, and is succeeded in turn by Capt. Thomas Slattery, of the Commodore. Capt. H. D. Osborn, of the Rome, is transferred to the Commodore, and Capt. H. L. Dennis from the Arabia to the Rome. Capt. John McKinnon, of the Montana, is made the new master of the Arabia, and First Mate Kennedy, of the Arabia, becomes master of the Montana. These changes have already gone into effect.

Interruption of Voyage by Cargo Owner—Damages Recoverable.—Where a vessel, abandoned at sea under circumstances which rendered such abandonment excusable, so that it did not operate to terminate the contract of affreightment, is brought into port by salvors, but by the action of the cargo owners the resumption of the voyage is prevented, the ship owner is entitled to be compensated for his loss of freight on principles of equity; but under such principles his damages cannot go beyond compensation, and he is not entitled to recover the gross freight he would have earned under the contract, but only the estimated net freight, and from that should be deducted the net amount the ship earned, or should reasonably have earned, during the time it would have taken her to complete the voyage. The Eliza Lines, 114 Fed. Rep. (U. S.) 307.

DETROIT.

The channel of the American locks at the "Soo" was cleared on Tuesday afternoon and the work of moving the fleets began immediately.

The cargo steamer Egan, collided with the passenger steamer F. A. Kirby, in Detroit river, on Tuesday. The Kirby's upper works received some damage but nothing serious.

The steamer Kirby is now in drydock being repaired for damages done in collision with the Wiley M. Egan, at Sandwich Point. The hull is not damaged, although a guard on the starboard side is cut through and the cabins are damaged. She will get out of the dock Saturday.

The keeper of the lights on Russell Island, St. Clair river, reports that the float light marking the northeasterly point of the shoal at the head of Russell Island, St. Clair river, Michigan, was carried away on the 8th inst., by a raft. The necessary steps have been taken to replace the light.

The two consorts, Santiago and Holland, collided at the Limekiln Crossing, on Tuesday. The Holland, bound down with iron ore, in tow of the Continental, received the most damage and required temporary repairs before proceeding. The Santiago was bound up in tow of the Appomatox.

The car ferry, St. Ignace, turned turtle while loading cars at St. Ignace, on Tuesday, and went to the bottom of the slip in twenty-four feet of water. The crew escaped without injury. The accident was caused by loading one side of the ferry with heavy cars of iron ore, with nothing on the other side to counter-balance the weight.

A report from the "Soo" on Monday, stated that the Canadian lock was unable to handle the boats as they arrived, and a hundred craft were waiting to get through. In some cases the delay amounts to thirty-six hours. It will take twenty-four hours to lock the waiting fleet through after the American canal has been opened.

The steel steam yacht Ridgemont, built for David C. Whitney, of this city, at Morris Heights, N. Y., has been launched. The Ridgemont is intended for service on the lakes, and Mr. Whitney will use her for cruising between Detroit, Georgian Bay and Grosse Pointe. The Ridgemont has a speed of 16 miles an hour, is 98 feet over all, 14 feet beam and 5 feet 9 inches draught.

Major Bixby, of the government engineer corps, announced that work would be started this fall for the dredging of an additional channel to the "Soo" locks. The plans call for two approaches above the canal, each 150 feet wide, one for up, the other for downbound boats. The two channels join before the locks are reached. The improvement will greatly facilitate vessel movements.

The large wrecking lighter, Thomas F. Newman, will be launched from the yards of the Jenks Ship Building Co., Port Huron, on Saturday. She is 174 feet in length, 36 feet beam and 15 feet depth of hold, well equipped for lightering and wrecking purposes. The Newman has been built to the order of the Great Lakes Towing Co., and will be stationed here to aid river traffic.

Major W. H. Bixby, Corps of Engineers, U. S. A., has advertised for sealed proposals for the removal of the wreck of the Geo. H. Waud, and will open bids June 19. The successful bidder must commence operations within 10 days after the signing of the contract; must complete the work within 40 days, and furnish a bond of \$1,000. The vessel and cargo also will belong to the successful bidder.

Purser McIntyre, who has so successfully catered to the wants of the thousands of patrons of the D. & C. line for several years past on the steamer State of New York, will leave that boat about the last of this week to accept a similar position on the new steamer Western States, on the Detroit and Buffalo route. The new berth will be much more acceptable, and the best wishes of a host of friends will go with Mr. McIntyre to his new position.

Railroad men in Bay City figure out that the Detroit & Mackinac railway could become part of a through line by making use of ferries at the upper end of Lake Huron. The plan as outlined would be to have the road built to Cheboygan, and there use ferries to Detour, from which a railroad could be built to the "Soo" or to Rudyard on the "Soo" line. Already there is a project to build from Detour to Rudyard. It has been under consideration by the "Soo" line officials, who have been carefully looking the ground over. It is said there is a probability of beginning the work or construction this year and that in any event steel will be laid next season.

Capt. William Livingston, president of the Lake Carriers' Association, in speaking of the achievement of Major W. H. Bixby, Corps of Engineers, U. S. A., in opening the American canals at the "Soo," says he is entitled to a world of credit, and that his prompt action in case of emergency cannot be viewed with too much commendation. The international bridge at the "Soo" was practically knocked off its foundation by the schooner Madeira several days ago, and completely blocked navigation through the Poe and Weitzel locks. As soon as the accident happened to the bridge Major Bixby, at present detailed in charge of the government work from Lake Erie to Lake Superior, started for the "Soo," and, with superintendent Ripley, of the American locks, and an engineer, took charge of the situation and successfully cleared the channel almost a week before it was first thought it could possibly be done.

CLEVELAND.

Capt. A. B. Wolvin, Duluth, manager of the Pittsburg Steamship Co., visited this port on Wednesday.

Capt. Graves has resigned his position as master of the new steel steamer Jupiter recently ashore near Ashtabula, and at which time she received heavy bottom damage.

The several fleets brought up by the Pittsburg Steamship Co., and which had been sailing under their former ports of hail, etc., have now been drawn together under their actual ownership.

It is announced at the office of the Great Lakes Towing Co. that the tug Buffalo at Ashland, and the tug Colton at Port Huron, were placed in service; also the tug Dunbar started at Buffalo.

It has been reported by business men along the river that there has been too much unnecessary whistling by the harbor tugs. Harbor Master Lynch was instructed to enforce the whistling ordinance.

The first of the Northern Line passenger boats is expected here on Sunday morning on her route to Chicago and ports of call. They have now only two smokestacks and alterations have been made in their upper works.

Deputy Collector of Customs John C. Carroll inspected the tugs of the Great Lakes Towing Co. this week. Charges had been made that they were not exactly conforming with the laws but the difficulty appears to have been cleared up.

There is no change in the strike situation locally. The company has two tugs, the Kennedy and Lutz, running here, and with the three independent tugs that are in commission vessels do not have much trouble getting in and out of port.

The steamer Charles Beatty, which was built at the yards of the Craig Ship Building Co., Toledo, to the order of Cleveland parties, started on her maiden trip up the lakes on Wednesday. She will go into the pulp wood trade, between the "Soo" and Grand Island, in the interest of the paper trust.

Fresh rumors of an opposition line on the Cleveland-Detroit route are in the air. This time it is a Lake Michigan flyer that is to compete for ducats and presumably the Barry boat Hackley. There is nothing on Lake Michigan likely to come this way that can touch the D. & C. Navigation Co.

A Japanese engineer, T. Slimoda, from Kobe, Japan, with the Kawasaki Dockyard Co., is making a tour of the different countries inspecting shipyards. He visited the yards while here of the American Ship Building Co. Mr. Slimoda says that in his country Japanese workmen employed in shipbuilding receive only forty-five cents a day. He is well pleased with all that he has seen in the United States.

Both sections of the Minnewaska reached the Welland canal all well, though they broke adrift from the tugs on Lake Erie several times, and sheltered under Long Point until the weather moderated. It is now hoped that they will be taken safely through the St. Lawrence system of canals and be successfully joined together at Quebec. The sister ship, Minnetonka, is nearly completed, and it has been figured that the Minnewaska will take her place immediately on arrival.

It is expected that the passenger steamer Urania, which runs between this port and Port Stanley and Rondeau during the summer, will begin her regular season on Monday. Plans have been made to that effect, and the Urania is expected over here on Sunday. The schedule this year will be the same as that of last season. There is not a more enjoyable trip to be had on Lake Erie, and every attention is paid to the convenience of passengers, etc., during the trip to or from the foreign country, which lays across the lake directly north of Cleveland. The local agents this season, as formerly, are Messrs. Bartlett & Tinker, River street.

In a recent competitive bid for supply of field glasses for the Navy Department, to be included in the outfit of about seventy of the new war vessels, the Cleveland glasses far exceeded those made by the only other manufacturer of prism field glasses in this country and those made by the best foreign manufacturers, and the Cleveland firm of Messrs. Warner and Swasey, easily won the contract. The foreign manufacturers are greatly chagrined at the loss of their business, and are said to be using every possible means to discover the secrets and methods of the Cleveland firm, which have made its output so successful.

The tug William Kennedy of the Great Lakes Towing Co.'s fleet, was fined \$20 this week by the collector of customs for not having her name on her bows. This is one of the charges brought by the crews of the tug boats. Since the law has been set in motion against the holders of licenses they appear to be inclined to retaliate, as there has evidently been a slackness in performing government duties, and Tom expecting Dick to do the work of Joe, etc. An injunction is also before Judge Wing, of the U. S. District Court, halting the Local Steamboat Inspectors from cancelling the bunch of masters', pilots' and engineers' licenses formerly in use on harbor tugs, or at least those owned by the Great Lakes Towing Co.

To even up matters with the Great Lakes Towing Co. for trying to get the government to take the licenses of its members away, the Licensed Tugmen's Association, through its attorneys, has petitioned the collector of customs to take away the papers of the tugs of the trust fleet. This was supplemental to the move instituted by the attorneys in preferring charges with the Attorney General against the Great Lakes Towing Co., on the ground that it is a trust and that it is conducting business contrary to the Sherman law. The charges were forwarded to District Attorney Sullivan, who has started an investigation. The jurisdiction of the Local Inspectors of Steamboats to cancel the licenses of men who won't work under present conditions is also questioned.

O. C. Pinney, Esq., for the Licensed Tugmen's Protective Association, has asked in the United States court for a perpetual injunction against the Local Inspectors of Steamboats, to prevent them from hearing the charges of conspiracy preferred against the licensed tugmen by the Great Lakes Towing Co. District Attorney Sullivan has begun an investigation of the Great Lakes Towing Co., acting under instructions from United States Attorney-General Knox. Charges that the tug combine is operating in violation of the Sherman anti-trust law were preferred against the towing company, by O. C. Pinney, Esq. The district attorney has also agreed to postpone the hearing of the charges preferred by the Great Lakes Towing Co., against the licensed tugmen, until a decision is given in the United States court, as to the constitutionality of the section under which the charges were preferred.

COASTWISE COMMERCE ON THE GREAT LAKES

Traffic on the Great Lakes has already advanced far beyond volume of the last year at the corresponding date. According to the Bureau of Statistics, Treasury Department, the summary of tonnage for April this year shows a total of 3,282,841 tons received and 4,151,090 tons shipped, compared with last April's movement of 338,135 tons received and 545,709 tons shipped.

Grain shipments from lake ports during April amounted to 1,378,889 bushels, compared with 7,907,952 bushels last April. In the coal trade shipments by lake show a corresponding enlargement. Mainly from lower lake ports there were shipped 939,096 tons this April, compared with 55,653 tons last April. Likewise in lumber and unclassified freight, April of this year shows a marked gain over the shipments of last year. The reported movement of registered tonnage on the lakes for April gives 5,487 arrivals of vessels, with a tonnage of 5,183,368 tons, and clearances of 5,883 vessels, with a tonnage of 5,751,136 tons. For the four months ending April 30 a total of 7,660 vessels of 7,390,097 registered tons were reported among arrivals, and 8,114 vessels, with a registered tonnage of 7,997,214 tons, as clearances. The coastwise and foreign shipments of coal on the lakes for the first four months of the year include 693,921 tons of hard coal and 1,833,752 tons of soft coal, amounting to 2,527,673 tons. The iron ore shipments of 1,774,652 tons brings the tonnage of these two articles in lake trade to a total of 4,302,325 tons for the first third of the year. The registered tonnage passing through the Sault Ste. Marie canals during April amounted to 2,322,879 tons, compared with 10,121 tons in 1901 and 539,191 tons in 1900. The Portage Lake Ship canals show an aggregate registered tonnage of 88,665.

The month of April marks the opening of navigation on each of the lakes, and also among the different lakes. The Sault Ste. Marie canals (Canadian and American), connecting Lakes Superior and Huron, opened on April 1 and 5, respectively, and the Straits of Mackinac, connecting Lakes Michigan and Huron, opened on March 27.

The rates of freight prevailing during the month were as follows:

On grain: Wheat—Chicago to Lake Erie ports and Buffalo, 1¼ cents and 1½ cents per bushel; Duluth to Buffalo, 2¼ cents and 2½ cents per bushel; Manitowoc to Lake Erie ports, 1¼ cents per bushel. Corn—Chicago to Lake Erie ports and Buffalo 1½, 1¼, 1¾, 1½ and 1½ cents per bushel. Oats—Chicago to Lake Erie ports, 1 and 1½ cents per bushel. Grain—Duluth to Lake Erie ports, 1¼ cents per bushel.

On coal: Buffalo to Duluth-Superior, 30 and 35 cents per ton; to Houghton, 35 cents per ton; to Chicago, Milwaukee, Sault Ste. Marie, Manitowoc, Green Bay, and Port Huron, 40 cents per ton. Oswego to Chicago, 80 cents per ton; Cleveland to Portage and Duluth-Superior, 35 cents per ton; to Escanaba, 40 cents per ton; to Green Bay and Milwaukee, 45 cents per ton, and to Sault Ste. Marie, 50 cents per ton.

On lumber: Lake Michigan ports to Chicago, \$1.50 per thousand feet.

On iron ore the same rates prevails as were reported last month.

On miscellaneous articles: Lake Michigan ports to Chicago, hardwood, \$2 per thousand feet; ties, 7 cents each; and posts, 4 cents each. Plaster rock, Alabaster to Chicago, 75 cents per gross ton. Salt, Manistee to Chicago, 40 cents per ton.

The lake-and-rail rate on flour from St. Paul to New York was as follows: For export 19½ cents per hundred pounds; for domestic consumption, 22 cents per hundred pounds. These rates are 3 cents lower than the all-rail rates. The rate by lake and rail from Chicago to New York was 15½ cents per hundred pounds.

A GRAPHICAL RECORD OF PROGRESS IN STEAMSHIP CONSTRUCTION.

A "Manual of Steel Steamship Construction" has recently been published in Germany, and its author, Herr Otto Schlick, in his introduction presents an interesting chart showing typical steam vessels from the beginning of steam navigation to the present time, all drawn to the same scale. The column is headed by the tiny Comet of 1812, named, perhaps, from the train of fire left behind from the chimney when the boat was under way, and the last on the list is the new Kaiser Wilhelm II, now being built for the North German Lloyd Steamship Co., which is planned to eclipse the White Star Line's Oceanic in length and the Hamburg-American's Deutschland, which now holds the ocean record for speed.

Herr Schlick also presents some interesting notes regarding the development of iron and steel shipbuilding, which we abstract as follows:

The first iron vessels ever built were some canal boats, constructed in England in 1787. Before this time iron could scarcely have been applied to boat construction, since it was only in 1784 that the process of rolling iron plates came into use, and it was 1786 that the first rolled iron plates were used in boiler construction.

Although from this time on there was a somewhat extensive application of iron to canal boat construction in Staffordshire, it was not until early in 1822 that the great stride was taken in advance by the construction of the steamboat Aaron Manby, which was worked up at Horsley and sent to London for erection. This steamer, under the command of Captain (afterwards Sir Charles) Napier, went direct from London to Havre, and was then put at work upon the Seine, where it rendered satisfactory service for a long time.

Two years later, in 1824, the Shannon Steam Packet Co. had an iron steamer built for river service, and this was soon followed by five others. Progress along these lines then became more rapid, and a number of firms at Liverpool and on the Thames turned out this class of work. The first iron sailing ship was built in 1838 by Jackson & Jordan, of Liverpool, and was called the Ironsides.

About this same time the firm of Tod & McGregor began to play an important role in iron shipbuilding on the Clyde. At that time sailing vessels were built with a gross tonnage of from 200 to 300 tons burden, and steamers had a length of from 130 feet to 200 feet. Among the latter the Princess Royal may be mentioned as a vessel noted for its size and speed. It had a length of 195 feet, a breadth of 26 feet and a depth of 16 3/4 feet, while its engines were capable of developing 400 horse-power.

In 1843 the Great Britain was built. This vessel was of dimensions that had been unheard of up to that time, and marked a great advance in the development of iron shipbuilding. This ship was also the first large screw steamer. She was built at Bristol for the Great Western Steam Packet Co., and had a length of 320 feet, a breadth of 51 feet, and a depth of hold of 32 feet. On a draught of 19 feet, this ship had a displacement of 3,900 tons. It had a capacity for about 1,000 tons of coal, 500 tons lading, and 300 passengers. The vessel was, however, an unfortunate one, and went ashore in Dundrum Bay on her first voyage, where she lay for a long time.

For some time after this the iron shipbuilding industry remained at a standstill, and the dimensions of the Great Britain were only slightly exceeded in rare instances, until the famous Great Eastern was produced. This ship, which was so enormous that it has only been equaled in very recent years by the largest types of trans-Atlantic express steamers, was built at Millwall in 1857 after the plans of Brunel and Scott Russell. Although it was commercially a total failure, its construction must nevertheless stand, in many respects, as a sample of modern design. Its length was 680 feet, its breadth 83 feet, and its depth 38 feet, while its registered measurement was 18,915 tons.

About the time of the completion of the Great Eastern the first experiments in the use of steel as a shipbuilding material were made. The first steel steamer was built on the Thames in 1857 for Samuda Bros. by J. & G. Rennie.

Curiously enough, the construction of the Great Eastern exerted no marked influence upon iron shipbuilding, since the relative size of steamers remained the same both before and after its completion and the later growth was quite gradual. In fact, it was more than half a century later, or in 1899, that the length of the Great Eastern was slightly exceeded by the White Star steamship Oceanic.

Iron shipbuilding was developed at a much later period in Germany than in England. It is impossible, however, to state with certainty as to when the first was built. Two of the first, possibly the very first, iron vessels to be built in Germany were the Konigin Maria and Prinz Albert, which were constructed in 1836 from the plans of Prof. Schubert. The first iron seagoing steamship to be built in Germany was constructed at Hamburg in 1838 by Gleichmann & Busse for a Holland firm, and was named the Willem I. About this time the same firm built the steamer Alexandrine which later, under the name of Phoenix, plied for many years in passenger service between Hamburg and Harburg.

In 1851 Messrs. Fruchtenicht & Brock, two Hamburg engineers, established a small works at Bredow, near Stettin, for the construction of iron vessels, and built in that and the following year Die Divenow, which for a time was used in the coal service, and is still in use as a hulk. From this small beginning there has grown that immense establishment known to-day as the "Stettiner Maschinenbau-Aktiengesellschaft Vulcan."

In 1853 the Tischbein dockyards at Rostock turned out two iron vessels for passenger service between that port and St. Petersburg. They were called the Erbprinz Friedrich Franz and Grossfürst Constantin. The first of these two ships, long known as the Amsterdam, is still in regular service between Hamburg and Rotterdam.

In 1854 there followed from the yards of Moller & Holberg, at Stettin, the steamer Princess Carl.

On the lower Elbe the first iron river steamer was built at Hamburg in 1855, by the Reiherstieg Shipyard and Machine Works. Two years later this same firm built the first iron sailing ship constructed in Germany, the Deutschland, and a short time afterwards built the steamer Patriot. The German establishments for the construction of iron ships enjoyed a very rapid development. Their numbers increased from year to year, so that at the present time Germany possesses thirty yards for the construction of iron or steel seagoing vessels. In comparison with England, which now possesses more than two hundred shipyards (though the great majority of them are engaged only in repairs and the construction of small vessels), this is a small number. But, in the matter of their output, the German establishments compare very favorably with England. The extraordinary advances which Germany has made in steel ship construction are principally due to the extensive development of the great German steamship companies during the past ten years.

STATISTICAL REPORT OF LAKE COMMERCE.

THROUGH CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO, FOR THE MONTH OF MAY, 1902.

EAST BOUND.

Articles.	U. S. Canal.	Canadian Canal.	Total.
Copper.....net tons	12,735	1,576	14,311
Grain.....bushels	991,080	241,356	1,232,436
Building Stone.....net tons	4,950	.....	4,950
Flour.....barrels	613,434	299,600	913,034
Iron Ore.....net tons	2,820,270	145,991	2,966,261
Iron, Pig.....net tons	3,348	.....	3,348
Lumber.....M. ft. B. M.	133,642	8,467	142,109
Silver Ore.....net tons	.....	.....	.....
Wheat.....bushels	6,844,673	2,507,570	9,352,243
Genl. Mdse.....net tons	2,398	4,383	6,781
Passengers.....number	473	2,139	2,612

WEST BOUND.

Coal, hard.....net tons	52,293	.....	52,293
Coal, soft.....net tons	600,473	37,142	637,615
Flour.....barrels	.....	.....	.....
Grain.....bushels	.....	.....	.....
Man'd. Iron.....net tons	13,537	3,687	17,224
Salt.....barrels	37,836	24,022	61,858
Genl. Mdse.....net tons	59,567	16,753	76,320
Passengers.....number	675	2,477	3,152

Freight.

East Bound.....net tons	3,352,851	280,034	3,632,885
West Bound.....net tons	731,546	61,228	792,774
Total Freight.....net tons	4,084,397	341,262	4,425,659

Vessel Passages.....number	2,356	569	2,925
Reg'd Tonnage.....net tons	3,582,752	370,413	3,953,165

Compiled at St. Marys Falls Canal, Michigan, under direction of Major W. H. Bixby, Corps of Engineers, U. S. A.

JOSEPH RIPLEY,
General Supt.

A LARGE SAWMILL INDUSTRY.

The Houghton Lumber Co. has purchased a sawmill of upper peninsula parties and will remove it to Atlantic sands during the summer months. The capacity of the mill will be something over 50,000 feet of lumber a day. It will be fitted up to cut either hard wood or pine. The plant will include a sawmill, shingle and lath mill and a factory for the manufacture of sash, doors and windows.

It will be one of the most complete plants in the upper peninsula, and nearly everything that is essential in the construction of a house will be manufactured. It is the intention of the company to move the mill at once.

The articles of association of the Houghton Lumber Co. filed, show that the company has a capital stock of \$50,000, divided into 5,000 shares of the value of \$10 each. The incorporators are James Pryor, Reginald C. Pryor and John C. Pryor. The purposes of the company as stated in the articles of association are to manufacture lumber, sash, doors, blinds, shingles and lath.

BURSTING BOILERS—SINKING SHIP.

There are some popular fallacies regarding engineering questions it seems almost impossible to kill. One of them that used to be very widely held when less was known about the strength of boiler structures was that explosions were invariably due to "shortness of water," and that with a plentiful supply of water in the boiler explosion was impossible. The tenacity with which this belief was held by the general public undoubtedly tended to obscure the real cause of these disasters, and, indeed, in many cases, led to blame being thrown upon innocent persons. Engineers, of course, now know better; but the popular mind still clings to this belief, and it is seldom a serious explosion occurs without its enunciation again appearing in the daily press. Another equally silly but fixed theory is that when ships founder the boilers invariably blow up as they disappear under the waves, uttering, as it were, a death-knell over their unhappy fate. We are reminded again of this in connection with the recent sinking of the Waesland off Holyhead, the daily press accounts of which were accompanied with the usual story about the rush of steam from the bursting of the boilers as the ship disappeared. This popular fallacy appears to be based upon the unquestioned fact that in such cases a rush of steam escapes from the funnels, and to an idea that the sudden drowning of the boilers makes them burst—that, in a word, they explode, and we may coin an anti-thesis, from "excess of water." The observed phenomena is, however, capable of very simple explanation, though it does not provide matter for the sensational "copy" in which the average reporter delights. That a rush of steam should escape up the funnels when the rising water reaches the level of the furnaces and suddenly quenches the fires is only natural; but the immersion of a steam boiler in cold water, far from causing increase of pressure has a precisely opposite effect, and lowers it by condensation at an exceedingly rapid rate. The risk of damage, if there is any, is that due to the creation of a partial vacuum in the boiler, as a consequence of which the shell stands a chance of being collapsed or crushed. The chance of this, however, is small, and we have never yet heard of a case in which a vessel has been subsequently recovered by salvage operations, being found with either a burst boiler or collapsed one. The daily papers, of course, pay little or no attention to this sequel of events. The requiem of burst boilers becomes, like "shortness of water," reporters' tradition, to be stowed away until another disaster occurs, when it is trotted out again as one of the thrilling incidents of a catastrophe.—The Mechanical Engineer (London).

HIGH-SPEED ENGINES.

In a paper on "High-Speed Engines," recently read before the Liverpool Engineering Society, Mr. J. Davidson gives the following figures as representing the average present-day practice in the type of engine considered:

I.H.P.	Revolutions per minute.	Piston speed.
50	550	475
100	500	500
150	450	600
200	400	600
300	375	625
400	350	650
600	325	700
1000	300	700

The difficulty in attaining still higher speeds of revolution lies not only in the great increase of inertia forces, but also in obtaining sufficient area through the ports to admit and release the steam quickly enough. Referring to the fact that excellent double-acting high-speed engines were now obtainable, the author stated that in these wear was avoided by the excellent lubrication afforded, and by the care taken to provide ample area in the bearings. Thus, in an ordinary marine engine the maximum pressure on the cross-head pin is about 1,500 pounds per square inch, the pressure on the guides 60 pounds to 70 pounds per square inch, on the crank pins 500 to 600 pounds per square inch, and on the main bearings 400 pounds per square inch. In a high-speed double-acting engine the corresponding figures would be about as follows: Cross-head pins, 1,000 pounds per square inch; guides, 40 pounds per square inch; crank pin, 400 pounds per square inch, and main bearings, 250 pounds per square inch. All these bearings, would, moreover, be supplied with oil under pressure by means of an oil pump. In illustration of the small amount of wear in the working parts of a modern high-speed engine, Mr. Davidson gave the results of measurements taken on a Willans' central-valve engine of 80 indicated horse-power, after five years' work, the average day's run being 13 hours. In the five years the engine had made over 535 million revolutions. * * *

The total wear of the shafts and brasses was 16/1000 inch at the governor end and 21/1000 inch at the flywheel end. The thickest feeler which could in any way be passed between the solid valve ring and the valve chamber bore was found to be 6/1000 inch, representing, say, 4/1000 inch wear from the original dimension.

Running Down of Tug.—A steamship which overtook, ran down, and sank a small tug in the Schuylkill river in the day time, and without giving any signal of her approach, was in fault, and is liable for the damages, in the absence of evidence clearly showing that the collision was caused by some fault of the tug. The Fleetwing, 114 Fed. Rep. (U. S.) 409.

NOTICE TO MARINERS.

LAKE ERIE—ERIE HARBOR ENTRANCE—SAND BAR FORMED—Information dated April 30, 1902, has been received from the Branch Hydrographic Office, at Cleveland, that a sand bar has formed to the southward of outer gas buoy No. 2, and between that buoy and the east end of north pier at entrance to Erie Harbor. Vessels should keep well to the southward of outer gas buoy No. 2, before turning to enter the harbor.

LAKE SUPERIOR—TWO HARBORS—ALTERATION IN LIGHTS ON BREAKWATER—With reference to Notice to Mariners No. 42 (1209) of 1901, further information has been received from the Branch Hydrographic Office at Duluth that the white light, formerly at outer end of extension of Two Harbors eastern breakwater, has been discontinued, and the fixed red light at the outer end of the old portion of the breakwater has been shifted to the outer end of the extension. A stake (natural color) has been placed about sixty feet from the end of the extended breakwater, on the prolongation of the extension, to mark the safe distance to be kept by vessel of deep draft.

LAKE ERIE—PUT-IN-BAY APPROACH—WRECK SOUTH OF RATTLESNAKE ISLAND—Information dated May 2, 1902, has been received from the Branch Hydrographic Office at Cleveland that the wreck of the schooner Barkalow, sunk at anchor April 26, 1902, in the western approach to Put-in-Bay, lies in about 30 feet of water about 85-100 (1) mile south of Rattlesnake Island and 1 1-10 (1 1/4) miles west of Peach Orchard Point gas buoy. The wreck is in range with South Bass Island light-house dwelling and extreme west point of South Bass Island. It heads west with spars showing and is a little south of the general course through the channel.

LAKE HURON—CANADA—GEORGIAN BAY—COLLINGWOOD APPROACH—DIRECTIONS, ETC.—Information dated May 3, 1902, has been received from the Northern Navigation Co. of Ontario, that in Collingwood dredged channel the black buoys are on the edge of the 20-foot channel which is 110 feet wide; the red buoys are on the west and south-west side of the 14-foot channel. Directions.—When about 1 to 2 miles north by west from the breakwater light, steer for the elevator until off the buoys marking the dredged channel. Then haul in between the buoys, leaving black to port, red to starboard, and follow the black buoys to the elevator. Approaching Collingwood from the northward, the elevator kept open to the eastward of Nottawasaga Island light the width of the island, leads clear of all dangers on the south shore.

LAKE SUPERIOR—MARQUETTE HARBOR—SHOAL LOCATED—The following information dated May 15, 1902, relating to a shoal in Marquette harbor, has been received from the Thompson Towing and Wrecking Association, through the Branch Hydrographic Office at Duluth. The shoal on which the Choctaw struck is located directly in line with the L. S. & I. ore dock and with the smaller of the two detached rocks off the end of Presque Isle Point just opening clear of the end of the breakwater at Presque Isle. There is about 18 feet of water over the shoal. Deep loaded vessels leaving that dock should keep on a line with the dock until about 300 feet clear of it, then open the range of the dock a little to the southward and westward and keep it opened until the two detached rocks mentioned above show well out past the end of the breakwater then they can safely haul down the lake.

INSPECTOR OF HULLS.

(STEAMBOAT INSPECTION SERVICE.)

The United States Civil Service Commission announces that on July 8-9, 1902, an examination will be held at the prominent cities and towns in the United States for the position of inspector of hulls in the Steamboat-Inspection Service.

Age limit, 25 to 55 years.

From the eligibles resulting from this examination it is expected that certification will be made to the position of inspector of hulls in the Steamboat-Inspection Service at Evansville, Ind., at a salary of \$1,200 per annum, and to other similar vacancies as they may occur.

This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules.

Persons who desire to compete should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of examiners at the places desired at the Custom House or postoffice, for a copy of the Manual of Examinations and application form 1087. The application should be properly executed and filed with the Commission at Washington. Persons who are unable to file their applications, but whose requests are received at the commission in sufficient time to ship examination papers to the places of examination selected, will be examined.

Issued June 4, 1902.

Rights of American Citizen—While a court of Admiralty of the United States will not entertain a suit by foreign seamen against a British ship to determine their rights under shipping articles, yet where one of the libelants is an American citizen, and the court is obliged to take jurisdiction to determine his rights, it will incidentally hear and decide the case as to his co-libelants. The Falls of Keltie, 114 Fed. Rep. (U. S.) 357.

PERE MARQUETTE CAR FERRY.

The steel car ferry Pere Marquette 18, now under course of construction at Cleveland, will be the most powerful craft of her kind on the lakes, which means that in several ways she will be superior to the other ferries of the Pere Marquette now plying the waters of Lake Michigan.

The new boat will cost \$400,000 and aside from the Goodrich Liners Christopher Columbus and Virginia, it is claimed that she will be the fastest boat on Lake Michigan.

The "18" will have the finest of passenger accommodations in addition to a large freight-carrying capacity, and will be well adapted for carrying excursions of any number of persons up to 5,000. Officials of the line and others familiar with transportation problems say that the "18" is but one of many similar steamers that will be built during the next few years. In constructing the vessel Superintendent Mercereau, who has practically entire charge of the undertaking, aimed at combining speed, comfort and the greatest carrying capacity possible. The "18" will have four tracks on the main deck, which will hold thirty railroad cars. There will be fifty staterooms and additional berths, making sleeping accommodations for 350.

The measurements of the craft follow: Length over all, 350 feet; length on keel, 338 feet; beam, extreme, 56 feet 3 inches; beam, molded, 56 feet; depth, from keel to top of sheer stake, 20 feet 4 inches; height between decks, 16 feet 9 inches. The two engines will be triple compound, direct acting, vertical jet condensing, and will be equipped with air and cooler pumps. All the working parts of the main engines, including shafts and propellers, will be made extra heavy for service in working through ice.

The boilers will number six, each of which will have a working pressure of 175 pounds to the square inch. They will be 13 feet in diameter, 12 feet long, and will have three corrugated furnaces, 3 feet 6 inches in diameter.

The entire hull will be built of steel shell plates one inch thick. Running 75 feet from the bow these plates will be doubled from the keel to a line three feet above the water line as a protection against ice.

The Pere Marquette 18 will make fifteen miles an hour in regular service, and will be placed on the Manitowoc-Ludington run, on which she will make two round trips every twenty-four hours.

The car ferries Pere Marquette 15, 16 and 17 will all be placed on the Milwaukee-Ludington route. Heretofore only one of these boats has handled this business.

CLERGUE STEEL RAILS CONTRACT.

The Canadian Department of Railways and Canals has been notified that the Clergue Co., of Sault Ste. Marie, will commence to deliver steel rails this week. The company had a contract with the department to supply 25,000 tons of steel rails, but unexpected difficulties occurred in connection with the installation of the plant, and the starting of the works, and 15,000 tons had to be obtained from England. The remaining 10,000 tons will now be delivered by the Sault Ste. Marie firm.

RECENT MARINE PATENTS.

701,329.—Automatic, self-inflating life-preserver. Jas. Graham, Carnoustie, and Robt. R. Tatlock, Stirling, Scotland.

701,571.—Shifting topsails. Austin Keegan, San Francisco, Cal.

701,595.—Feathering paddle-wheel. James Merkel, Weilersville, Ohio.

701,651.—Electrical ships' log apparatus. Thomas F. Walker and Thomas S. Walker, Birmingham, Eng.

701,654.—Grappling hook. David White, Kentwood, La., assignor of one-half to George A. Kennon, same place.

701,746.—Boat stopping and holding device. Philip M. Maloney, Philadelphia, Pa.

701,758.—Oar lock. Edward F. McIntyre, Lake Phalen, Minn., assignor of one-half to Oscar Roslund, St. Paul, Minn.

701,759.—Oar. Knowlton C. McNeill, Chandlerville, Illinois.

STATEMENT OF THE VISIBLE SUPPLY OF GRAIN.

As compiled by George F. Stone, Secretary Chicago Board of Trade Saturday, June 7, 1902.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo.....	756,000	338,000	227,000	33,000	220,000
Chicago.....	4,119,000	2,143,000	525,000	365,000	.....
Detroit.....	94,000	.....	1,000	9,000	.....
Duluth.....	6,269,000	36,000	7,000	5,000	54,000
Fort William, Ont.	1,961,000	.....	.....	.....	.....
Milwaukee.....	83,000	8,000	91,000	9,000	15,000
Port Arthur, Ont.	125,000	.....	.....	.....	.....
Toledo.....	25,000	245,000	168,000	54,000	1,000
Toronto.....	6,000	9,000	14,000	.....	.....
On Canals.....	855,000	129,000	306,000	85,000	23,000
On Lakes.....	1,274,000	746,000	251,000	18,000	.....
Grand Total.....	26,091,000	4,261,000	2,483,000	693,000	400,000
Corresponding Date, 1901.....	35,292,000	16,049,000	10,588,000	698,000	695,000
Increase for week.....	.....	34,000	.....	.....	.....
Decrease " ".....	2,513,000	.....	572,000	53,000	185,000

While the stock of grain at lake ports only is here given, the total shows the figure for the entire country except the Pacific Slope.

SHIPPING AND MARINE JUDICIAL DECISIONS
(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Pleading—Sufficiency of Libel—A libel in rem should state the nationality of the vessel proceeded against, but such allegation is not indispensable when jurisdiction is invoked by a libellant who alleges that he is a citizen of the United States. The Falls of Keltie, 114 Fed. Rep. (U. S.) 357.

Misjoinder—A claim by seamen for damages on account of alleged assaults by the master cannot be litigated in a suit in rem, but, where the libel contains other allegations stating a cause for action in rem, those relating to such claim may be disregarded, as surplusage, and the misjoinder will not be fatal. The Falls of Keltie, 114 Fed. Rep. (U. S.) 357.

Shipping—Breach of Charter—Damages—The owner is entitled to recover from a charterer the amount necessarily expended by the master in trimming a cargo after loading, made necessary by the fact that the cargo was not in proper condition, or that the ship was loaded at a place where she could not "always lie afloat," as required by the charter. Carbon Slate Co. vs. Ennis, 114 Fed. Rep. (U. S.) 260.

Towage—Care Required of Tug—Injury of Tow on Sunken Rock—The master of a tug, taking his tow into a harbor and to a dock with which he is unfamiliar, is bound to exercise the highest care to protect her from injury, and his failure to either take a pilot or to inquire from persons competent to give him information renders the tug liable for an injury to the tow from striking on a sunken rock, the existence of which was known to navigators familiar with the locality. The Mabel S., 113 Fed. Rep. (U. S.) 971.

Admiralty Jurisdiction—Suit by Citizen Against Foreign Ship—Rule of Comity—An admiralty court of the United States has no right to refuse its process when demanded by a citizen of the United States against a foreign ship for the purpose of having the rights of the parties determined under a maritime contract, such as shipping articles, and to remit the controversy to the determination of the consular representative of the country to which the ship belongs. The right to invoke such jurisdiction is one which belongs to every citizen, and of which he cannot be deprived even by treaty or legislation. The Falls of Keltie, 114 Fed. Rep. (U. S.) 357.

Seamen—Construction of Shipping Articles—Termination of Term of Service—Shipping articles described the voyage for which the seamen became bound as from New York to Shanghai; "thence, if required, to any ports and places within the limits of seventy-five degrees north and sixty-five degrees south latitude, trading to and fro for a period not to exceed three years; voyage to end at a port in the United States, the United Kingdom or the continent of Europe." Held, that the contract was for a voyage, and not for a term of three years, and that such voyage terminated, and the seamen were entitled to discharge on the return of the ship to a port of the United States. The Falls of Keltie, 114 Fed. Rep. (U. S.) 357.

Construction of Charter—Commencement of Lay Days—A provision in a charter, "Lay days not to commence to count until 12 o'clock noon after the steamer is entered at the custom house and in every respect ready to load," though negative in form, is positive in effect, and means that the lay days shall commence to count at that time; and where, by a further clause, the ship was required to load "when, where, and as directed" by the charterer, and she was ready on her part, and her master had given the required notice, the lay days commenced to count from the succeeding noon, and the responsibility for a further delay in commencing to load rests upon the charterer, although caused by a custom of the port which compelled her to await her turn to get to the berth assigned her. Carbon Slate Co. vs. Ennis, 114 Fed. Rep. (U. S.) 260.

Negligence—Safe Appliances—In an action for a ship-carpenter's death owing to the breaking down of a staging on which he was at work, assisting to place cant timbers in position, as a result of a cant timber striking it, it appeared that, in order to adjust the cant timbers, it was necessary to hoist and lower them by means of an engine, blocks of tackle, a rope, derrick, and other appliances. The testimony tended to show that the cant timber, after it had been hoisted, would not come down; that, after it had been lowered a little, the rope ceased to pay out, but the engineer, pursuant to signals from the foreman, continued to slack the rope, and finally allowed it all to go; that, after the cant timber failed to come down, the foreman took hold of the rope, and threw his weight upon it, pulling it down, and causing the timber to break the staging on which decedent was at work. There was a knot in the rope, which was tied at the order of the foreman, who, after the accident, stated that the knot might have fouled or caught something. There was also evidence tending to show that it was negligence to use a rope with a knot in it. Held, that the question of defendant's negligence was for the jury. Sroufe et al. vs. Moran Bros. Co., 68 Pac. Rep. (Wash.) 896.



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CLEVELAND, O., JUNE 12, 1902.

THE RECORD is indebted to the Detroit & Cleveland Steam
Navigation Co. for the season courtesies extended to us
this year as usual.

THE May issue of the Journal of the American So-
ciety of Naval Engineers, published quarterly in Washing-
ton, D. C., is replete with valuable technical articles writ-
ten by the most eminent authorities on the several special-
ties of which they treat.

THE naval appropriation bill was passed by the Senate
on Tuesday. On motion of Mr. Spooner (Wis.) the Sen-
ate restored the words "the Great Lakes" in the amendment
providing for the appointment of a commission to select
a site for a naval training station.

COLLISIONS seem to be abundantly in evidence about
this time. It is possible that some local inspectors are
not fairly examining licensed officers regarding their
knowledge of the "Rules of the Road" and especially the
lake clauses known as the "White" law.

AN ARTIFICIAL gateway must be opened across Central
America. There is no use waiting any longer for earth-
quake or volcanic force. Panama or Nicaragua—which?

SENATOR M. A. Hanna presented incontrovertible facts
before the Senate this week in favor of the Central Amer-
ican divide at Panama. The Nicaragua route was less
ably advocated.

ANOTHER of the big supply bills of the government was
disposed of by the Senate on Tuesday, the naval bill, carry-
ing more than \$78,000,000, having been passed. It in-
cludes provisions for two first-class battleships, two first-
class armored cruisers, and two gunboats, but strikes out
the House provision that one of each shall be built at
government yards.

RAILROAD cars no longer require two streaks of rust
placed on *terra firma* to change location with the aid of
a steam locomotive. Lake shipyards are now taking the
lead of the world in building railroad car-ferries and ice-
breakers. Two of the finest ever, are now under contract
for construction at the yards of the American Ship Build-
ing Co. These contracts also mean engines, boilers and a
general complete equipment at the plants where the hulls
are constructed, and by the same contractors, no sub-letting
of portions of any of this million dollar job.

A DEPARTMENT OF COMMERCE.

A new department, to be called the Department of Com-
merce, is now by the action of Congress assured legislation.
In addition to the interests to be committed to its charge
in the field marked out, the Department of Commerce will
relieve the Treasury Department of quite a number of
duties that are now burdensome, though earlier in the his-
tory of the country, before our commerce had grown to
such proportions, it was easy enough for the Treasury
Department to handle.

It is proposed to concentrate within this department all
the affairs relating to the commerce and industry of the
nation. Other governments have a similar department.
Our commerce and industry are very much larger than that
of many other countries, and yet Congress has neglected
to constitute such a department. The members of Con-
gress have always been loth to increase the number of cab-
inet officers. During the past fifty years there have been
only two new cabinet positions created. One was the
Secretary of the Interior and the other the Department of
Agriculture. The Treasury Department is already stuffed
with too many bureaus, and a new Department of Industry
and Commerce would relieve the Treasury from what
might be termed a deal of outside work. It is beyond a
doubt that the proposed department is needed, and it should
be created. It would prove of material benefit to the
United States, which is so rapidly extending its trade re-
lations throughout the world.

The first thing, of course, is to put the new department
into good hands, and there is no doubt about the President
having plenty of material to choose from. And if the
names already mentioned for the new cabinet officers have
received consideration by the President, it will not make
much difference which of the number he may choose, for
all are good.

POWER OF LOCAL INSPECTORS.

A DAILY newspaper man says: "The inspectors (local in-
spectors of steamboats) have the power to issue and re-
voke licenses." Let it be understood that they have noth-
ing of the sort. A local competitive, voluntary examination
is held, and, if the candidate answers questions suitably,
etc., the local inspectors are in duty bound compelled to
issue licenses accordingly. On the other hand, before tak-
ing any steps toward suspending or cancelling a license,
charges must be filed against the holder thereof and such
charges must bear a distinct relation to the question in
point, viz., has the holder of a license vitiated his rights to
retain the license to work in the line of his ordinary occu-
pation. Providing the local inspectors consider, guess or
determine that gross negligence, unskillfulness or intoxica-
tion rendered the licensee temporarily incompetent or blame-
worthy, they rightly, or wrongly, deal with the persons'
license, although they may have issued the same and
vouched for the man's competency but shortly before.
Should any dispute arise at this point, the evidence, find-
ings, etc., with right of appeal, is relegated to the discre-
tion of the supervising inspector of the district for final
action to be taken thereon, with no other recourse for the
plaintiff or defendant, or whatever he has become by this
time. It is needless to state that the supervisor seldom
disagrees with the action taken by his locals and his
endorsement but voices their views, thus, the court of final
appeal resolves itself into the preliminary and original find-
ings as set forth by the local inspectors of hulls and of
boilers, and to this extent, perhaps, may it be said, though
in a qualifying sense, that the local inspectors have the
power to issue and revoke licenses.

CHARGE OF CONSPIRACY.

SOME licensed officers refused to testify this week before
the local inspectors of steamboats at Duluth in the case
wherein they are charged by the Great Lakes Towing
Co. with being parties to a conspiracy to hinder naviga-
tion on the Great Lakes. The reason assigned for their
action was that other charges were pending before the
inspectors and that by answering the questions they might
incriminate themselves. The bare fact of a man holding a
license does not compel him to be at the beck and call of
duly paid vessel equipment inspectors, either at Duluth or
elsewhere. To save the steamboat inspection branch of
the Treasury Department from any outlay of money for
traveling expenses, witness fees, etc., depositions are or-

dered taken at a distance. Licensed men not employed
would do well to ignore requests for information from
a source considered derogatory to their best interests.
This last step is of a piece with the jug handle method
being tried to force men to work. A man holds his license
for competency, and when fulfilling his duties need not
know a local inspector of steamboat equipment from a
crow; when the licensed man is not employed the local
inspector is not compelled to act as his guardian to the ex-
tent of insisting that he should work under compulsion.

VOL. I. No. 1, The Maritime News and Review, pub-
lished weekly at Baltimore, Md., a four column, sixteen
page journal, devoted to shipping and kindred interests
on the Atlantic and Gulf coasts, reaches our exchange
table this week. We are gratified to learn of so apparently
able a champion being added to the ranks of marine jour-
nalism. The field is a wide and ever-increasing one, both
in importance and volume, and the News and Review
seems to be well capable of fulfilling its part in upholding
the great interests of the merchant marine in its special
section of the country and the waters tributary thereto;
furthermore, judging from the make-up of the initial
number, it will be all there when wanted. The News and
Review carries our best wishes for its continued success
and prosperity in the uphill traverse until the newness wears
off. May it increase in prestige and influence and ever
be found standing shoulder to shoulder in the ranks of and
with those who are striving for the rehabilitation, up-
building and the eventual maritime supremacy of the
United States mercantile marine.

THE Local Inspectors of Steamboats at the several im-
portant lake ports seem to be kept busy these times, attend-
ing to their regular steamboat equipment inspection duties,
and collision inquiry cases. The wholesale cancellation of
tugboat men's licenses has not yet been brought about,
nor may we venture to say is it likely to under the present
charges. The local inspectors are loaded down to the
scuppers already with actual duties and assumed authority.
why then pile on legal and judicial functions to further waste
their leisure time? Congressman Minor, of Wis., egged
on by Geo. Uhler, presiding officer of the Marine En-
gineers' Association, slid a bill through the last Congress
giving the Local Inspectors of Steamboats the authority of
a notary public, and there, their judicial authority ought
to end. Perhaps Congressman Minor will work in future
to make Supreme Court judges out of these local steam-
boat equipment inspection officers.

THE Lumber Carriers' Association is laying up tonnage
with the object of balancing and maintaining fair living
freight rates. The Lake Superior lumber shovers rather
insist upon all vessels in the trade being regularly sent to
load cargoes irrespective of the lowering tendency of the
freight market. The question now is whether the lumber
shovers can't get out a restraining order, an injunction, or
interest the courts in some manner so as to prevent the
Lumber Carriers' Association from withdrawing any or
more vessels from the Lake Superior route, thereby re-
straining the commerce of the Great Lakes. Court injunc-
tions are now the orders of the day, but there is a gen-
eral and quite popular suspicion that they usually lean in
favor of the side having the most influence—"influence!!!"

THE Bill before the House Committee on Merchant
Marine and Fisheries last week, as presented by the Na-
tional Association of Masters and Pilots failed of obtaining
recognition, as of course, it was more than probable it
would. The Association desired a jury trial in the case
of licensed officers, and, that in the event of an engineer
being accused and whose license was in jeopardy, his case
should be heard before a jury composed of marine engi-
neers and the same rule to apply in the case of a master,
mate or pilot. It would at most times be found difficult
to empanel such a jury.

THE detention at the American locks Sault Ste. Marie,
continued from Friday, June 6, to Wednesday afternoon
June 11. The one lock on the Canadian side took care
of the entire Lake Superior traffic during the interval, and
as well as possible, for which convenience lake interests
are enormously indebted to our Canadian cousins, as
represented by the Dominion government.

THE total net registered tonnage of steamers belonging to ports of the United Kingdom at the end of 1891 was 5,307,204 tons, at the end of 1901, 7,617,793 tons. The percentage increase in the interval of ten years was 43.6. The proportion which the net registered tonnage owned by the White Star and Dominion Lines bears to the total net registered tonnage of United Kingdom steamers, omitting vessels of under 100 tons, is somewhat less than 3 per cent.

THE North German Lloyd steamer Kron Prinz Wilhelm, which sailed from New York June 3, arrived all well after a passage of 5 days, 11 hours and 30 minutes to Eddystone light, making an average speed of 23.53 knots an hour, which is the best eastward record. This record making gallop across the Atlantic shows a 27 statute mile gait, which is a fair average speed for some railroad trains.

TONNAGE EXEMPTION LAW UNCONSTITUTIONAL.

Attorney General Stratton, of Washington, has decided that the law passed at a special session of the Washington Legislature last summer, exempting shipping from taxation, is void. The act of Legislature provided that the ships or vessels registered in any customs house of the United States within this State, which vessels are used exclusively in trade between this State and any island districts, territories, states of the United States or foreign countries, shall not be listed for the purpose of, or subject to, taxation, in this State. In the opinion of the Attorney General this enactment is in direct conflict with the constitution of Washington, which states clearly what properties shall be exempted, and provides for the taxation of all other property, except such as is exempted by the United States statutes. An amendment to the State constitution would be necessary to accomplish the desired exemption.

MORE PACIFIC OCEAN TONNAGE.

It is reported from St. Paul that the Great Northern Steamship Co., of which James J. Hill is president, has decided to build three more ships for the Oriental trade between Seattle and China.

The company has now two ships under construction and it is intended to launch them and have them in service at the earliest possible date.

These two ships have a displacement of 40,000 tons each, and the following dimensions: Length, 630 feet; beam, 73½ feet and depth of hold 56 feet.

The three additional vessels are to be built along the same general lines and dimensions of the two now in the ways. It is expected to have them ready for service early next spring.

President Chas. R. Hanscom, of the Eastern Ship Building Co., New London, Conn., when interviewed regarding the purport of the above dispatch would not confirm or deny that he knew of Mr. Hill's plans, merely remarking that he had nothing to give out in relation to any new contracts that might come to the Eastern Ship Building Co.

It will be remembered that Mr. Hill some time last year stated that he intended having other steamships built at New London, Conn., and this statement was afterward withdrawn, or at least the impression given that on account of the attitude of Congress on the ship subsidy bill Mr. Hill would not build any more ships. It is possible that Mr. Hill is better satisfied with the conditions relative to the subsidy measure and has at last concluded to add to the strength of his Pacific tonnage.

OBSTRUCTION TO COMMERCE AT THE "SOO."

The entire Lake Superior commerce is much inconvenienced by the break down of the railroad bridge crossing the lock at Sault Ste. Marie. It is stated that the railroad company proposes to repair the drawbridge where it lies, without opening the double lock which the broken structure now blocks, and an appeal has been made to the War Department at Washington, to have the railroad people advised to remove the obstruction first and make their repairs afterward.

Secretary Harvey L. Brown, of the Lake Carriers' Association was urged to take action by some of the members of the association and he at once communicated with H. D. Goulder, Esq., counsel for the Lake Carriers, the application to the department following very speedily.

The bridge in question crosses the canals leading to the two locks on the American side and both are now impassable. The Canadian lock through which all boats must pass pending the removal of the bridge, is not only out of the way but there are many rocks in the channel at its entrance that make navigation extremely hazardous for large vessels, some idea of the delay brought to commerce by the accident is shown in the following dispatch received from the Soo.

"To avoid vessel jams at the piers during the break in the International Railroad bridge, down-bound boats are being held at Point Aux Pins and passed down as fast as locked. Up-bound boats are being held at Hay Lake and brought up in their turn."

AN EASTERN SHIPBUILDING SYNDICATE.

A New York dispatch revives the story of a consolidation of the Eastern shipyards, and it is stated that all but the formalities of the plan to combine the yards under one management have been completed. A few papers remain yet to be signed, and for this purpose a meeting of these most interested will be held this week, after which a formal announcement will be made and the securities of the new corporation placed on the market.

In spite of the extreme reticence of the men who are promoting the formation of the combination it is again learned that the plans contemplate a company which will turn out any kind of vessel, from a tramp steamship of average dimensions to a battleship with the heaviest armor. Iron and steel works are being negotiated for, and it is understood several extensive plants have been purchased. Lewis Nixon, the shipbuilder who resigned recently, the leadership of Tammany Hall, and who has been most active in bringing about the combination, refused, however, to discuss his plans.

The combine will probably be known as the United States Ship corporation, and will be incorporated in New Jersey. The capitalization will be about \$25,000,000, equally divided in common and preferred shares, and it is likely that bonds in two classes, amounting to \$9,000,000, will be issued. The Trust Company of the Republic of New York will finance the combine and act as transfer agents.

It is stated that the following companies and firms have been invited to enter the combination:

Union Iron Works, of San Francisco; Bath Iron Works, Bath, Maine; Hyde Windlass Co., Bath, Maine; Crescent Shipyard, Elizabethport, N. J.; Samuel L. Moore, Sons & Co., Elizabethport and the Harlan & Hollingsworth Co. of Wilmington, Del.

LAKE FREIGHTS.

Iron ore is the best bower and sheet anchor of lake freight rates and charters these times, and is the balancing power which rules transportation charges. There was cause enough for general complaint regarding detention at loading and discharging ports previous to June 6, but since that time and up to yesterday all Lake Superior traffic has been at the mercy, good will, or whatever it may be termed, of the Canadian canal at Sault Ste. Marie, the two American locks being placed out of service on account of the railroad bridge spanning their entrance being wrecked, thus forcing a detention of several days in the regular traffic.

The rates remain as they have been all season, though the shipments last month are one million tons behind former anticipations, 3¼ million instead of 4 million tons, and this serious delay at the "Soo" will not tend to help June shipments or receipts along to any alarming extent over the May movement.

Coal is being forwarded slowly, and there is no improvements looked for in the situation. Vessels have to wait at the docks and considerable time is being lost. There is some more season coal on the market for Lake Michigan ports, but Lake Superior shippers of bituminous are pretty well covered, and it is not likely that any more contracts for the head of the lakes will be made. There will not be much change in the situation until the labor troubles in the anthracite district are settled, and the Buffalo and Erie shippers come into the market for tonnage. The action of the Pittsburgh Coal Co. in contracting for vessel capacity for 350,000 to 400,000 tons of coal to run through the season, indicates a probability of higher freights later in the season, although there are no signs of a change at present. Vessel owners are much more satisfied with the future outlook than they were a couple of weeks ago.

Grain rates are without change at 1½ cents from South Chicago or the north branch of Chicago river, and 1¼ cents from the south branches, a cargo to Midland paid 13½ cents.

The Lake Superior lumber situation is without change. The shipment has been reduced to the minimum, and there is but a very meager demand for boats. The division of craft into the other lines of trade has been so complete, coupled with the craft that are laid up waiting for brisker chartering at fair freights, that there is no noticeable surplus of boats over apparent needs. So far the owners have been successful in maintaining the rates.

DOMINION TIDAL SURVEYS.

At a meeting of the Royal Society of Canada last week, in Toronto, the following resolution was adopted:

Moved by Dr. Johnson, vice-president of McGill University, seconded by Dr. Loudon, president of Toronto University, and unanimously carried:

"That this society highly appreciates the work done by the Dominion government for the benefit of navigation through the Tidal Survey Department.

"That it, at the same time, respectfully represents that a further and speedy extension of the work is of the highest practical importance to shipping. Further, that it would renew its representations in favor of the establishment, under the Minister of Marine, of a Hydrographic Survey Department for the sea coasts, similar to those found necessary by other maritime nations."

An influential committee, with power to add to their number, was appointed to present the above resolution to the Dominion government at a fitting time.

WE NEED TROPICAL COLONIES.

It is hard to realize, but it is a fact that the importation into the United States of tropical and sub-tropical products have averaged more than \$300,000,000 a year during the last ten years, and is now fully \$1,000,000 each day, Sundays and holidays included. This proves the wisdom of our acquiring tropical possessions, so that American capital can be used for these productions and remain with ourselves, instead of being utterly lost to us nationally by being paid out to foreigners. Some of the necessary tropical possessions we already have, and we are in a fair way of getting the Danish West Indies, while there are others only waiting the opportunity to enter our family. Why should we pay outsiders \$60,000,000 a year for coffee, \$28,000,000 for India rubber and \$22,000,000 for fibres? Or millions more for fruits, nuts, tobacco, tea, spices, cabinet woods, indigo, cinchona, chocolate, etc.?

The following figures prove the soundness of this argument. We bought from

	1890	1900
Hawaii	\$12,313,908	\$20,707,903
Porto Rico	1900	1901
	3,070,646	5,883,892

Of sales to their mother countries the following colonies show:

British, 43 per cent. of their total exports.
Dutch, 43 per cent. of their total exports.
French, 66 per cent. of their total exports.
Porto Rico, 65 per cent. of their total exports.
Hawaii, 99.4 per cent. of their total exports.

But that is not all. We need more outlets for our rapidly increasing output of products, raw and manufactured. At home it is not possible for us to eat and drink or wear out all we produce and make. Our Porto Rican figures of exports thereto prove this value of new outlets:

1898	\$1,481,629	1900	\$4,260,892
1899	2,633,400	1901	6,861,917

Taking Hawaii also as an example, we note that since our reciprocal agreement of 1876 Hawaii has increased her sugar producing by twenty-fold, and similarly increased her purchasing power. The figures also prove this:

In 1875 we sold Hawaii.....	\$ 662,164
In 1890 we sold Hawaii.....	13,509,148

which is a twenty-fold increase in the fifteen years, while in the next ten years, 1890-1900, and particularly since Hawaii became related to us at her own request, the increase has been much greater still.

All this colonial progress both ways affords good ground for hope as to the ultimate value to us of our Philippine possessions.

The business being done in the Orient is far greater than generally imagined. It amounts to \$1,200,000,000, or \$100,000,000 a month, for the countries for which Hong Kong, Singapore, and Manila are the trade centers. And that vast trade is in goods mainly produced in the temperate zones. Among the countries producing those goods, except in the matter of our want of an ocean marine, we occupy first place, not only as to the diversity and quantity of our natural resources but also as to our vigorous and up-to-date processes of manufacture.

WALTER J. BALLARD.

Schenectady, N. Y., June 3.

CONTRACT FOR THE CONSTRUCTION OF A LARGE STEEL CAR FERRY.

The Manistique & Northern Railroad Co., and the Traverse City Leelanau & Manistique Railroad Co., closed a contract in Cleveland on Wednesday, with the American Ship Building Co., for the construction and equipment of a large steel railroad car-ferry steamer, to cost \$500,000, and contracted for early delivery next spring.

In connection with this shipbuilding order it is stated that other contracts will be entered into in the near future. Mr. Kauffman, vice-president and treasurer of the railroad company, advances a new proposition. He says that it is altogether possible for the road to handle ore down from Marquette and to handle coal back, all-rail, by the use of this ferry, and thus for the first time in the history of the lake trade bring the all-rail competition into a trade which the boats have heretofore monopolized. Mr. Kauffman says that he believes the rates can be made, and the roads operated in such a way as to make it a paying business. The route would be the South Shore from Marquette to Shingleton the M., M. & N. to Manistique, the ferry to North Port, the new T. C. L. & M. to Traverse City, and the Pennsylvania or its connections through to the valleys of the Pittsburgh district.

THE negotiations of the British and Canadian governments, and some of the other colonial governments, with the Cunard Line and other lines comprising what is now termed the Liverpool Syndicate, (which is opposing the Morgan Shipping Combine), contemplate both a fast service of mail and passenger steamers in conjunction with the Canadian Pacific railroad and a fleet of fast freight steamers. The mail steamers which it is proposed to build will be of enormous size, capable of steaming twenty-five knots an hour, and will be fully equipped for use as armed cruisers, carrying eight quick-firing six-inch guns, forward and aft, and broadsides of three 4.7-inch guns. The freight steamers will be sixteen knot vessels, carrying 6,000 to 7,000 tons dead weight.



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160 Broadway, New York City.

THE GREAT AMERICAN SYNCLINAL.

(GEOLOGICAL DEDUCTIONS FROM OBSERVATION.)

The geologist standing upon the Alleghenies, the remnant of the western base of that ancient mountain, whose apex was many thousands of feet higher than the highest peaks of the Appalachian range now are, sees the foot of this monster mountain gradually descending in a west-north-west course towards the "Father of Waters" beyond which there is a gradual emergence towards the Rocky mountains, which are the western edge of this vast synclinal.

There is a tilting or sinking of this great synclinal in a south-west course, and judging by such datum as can be obtained, it seems that the submergence process especially noticeable along the Gulf coast of Southern Texas, has not yet ceased, should this sinking continue it will finally change the drainage of the Great Lakes towards the Mississippi; proof of this is seen in the gradual emergence of the northeast coast.

We notice in going westward from the Alleghenies that each succeeding synclinal is somewhat deeper, or lies somewhat lower than the preceding one. This leads to the conclusion that what are generally considered as mountain ranges, are only parallel rolls, along this vast synclinal, whose southern limit is beyond the Gulf of Mexico, and embraces the greater part of South America, that lies east of the Andes, and west of the Brazilian mountains, and its northern limit seems to be in the vicinity of the Great Lakes, yet westward from there appears to be a continuation, which north of the lakes, broadly embraces all of British America east of the Rocky mountains, and west and north-west from the Watchish mountain, including Hudsons Bay and northward to the Arctic Ocean. The Black Hills, and the Ozark mountains are like coma, a something that has resulted from pressure.

This great synclinal also seems to contain the greater part of the petroleum and gas that amounts to anything, in either of the Americas. Naturally the question as to whether there is any coal up north in this synclinal, presents itself. It would be extremely difficult to assign a reason why there should not be, and judging by the results obtained with coal from other high northern latitudes, probably would be found plentiful and of a very high quality. It is asserted upon apparently good authority, that such coals are more dense than those from elsewhere, both being of equal purity.

Another puzzling problem presents itself, as we go northward we find that such minerals deposits, as are largely dependant upon carbon, show a marked increase in size and purity.

I submit the following propositions, viz, 1st, 2nd and 3d:

1st. A growing suspicion fastened itself upon my mind some years ago, that to obtain a reasonable solution of these vexatious problems, we must look away back towards nebulosity, and seek for the condensation of carbon deposits, as having been done under magnetic influences.

2nd. And that the progressive thinker must take into his calculations electricity, and magnetism as prime factors, seems inevitable.

3d. If we can believe that the "sedimentary deposits" have resulted from concentration and sublimation of nebulous matter, no doubt many seemingly difficult matters could be intelligently solved.

J. R. HECKMAN.

Conner, Pa.

WIRELESS TELEGRAPH ON LAKE ONTARIO.

The Marconi Wireless Telegraph Co. are arranging to introduce their system on Lake Ontario. John Foy, manager of the Niagara River Line has about concluded an agreement with the Marconi Company, by which stations will be erected at Lewiston and Toronto, with efficient instruments and operators on board the passenger steamers, Chippewa and Corona. Besides the advantages in being constantly in communication with land, Mr. Foy believes that it will prove a boon to many passengers, who would desire to send telegrams, business or otherwise, en route.

EXTOLLING THE WINDY CITY.

The busiest harbor in the world is at Chicago, "the young Metropolis of the Inland Seas," says Popular Mechanics. This generally unknown fact, together with its many other dramatic associations, makes it one of the most interesting as well as the most important of America's ports. The narrow strip of water piercing six miles of the commercial heart of the city is a scene of activity that makes the person not acquainted with the importance of Chicago's shipping interest look on in bewilderment. Through the shipping season more vessels arrive and depart from here than at any other point in the world; in the tonnage of arrivals and clearances the port also excels all others. In the winter when traffic on the Great Lakes is virtually suspended because of the ice and storms the Chicago harbor is blocked with ice floes, and there is little shipping of any kind. But even including this season in the year's average of business, statistics show the Chicago harbor to rank ahead of any other in America in number of arrivals and clearances as well as in tonnage, and second in importance among the great ports of the world. London alone is ahead of Chicago in the amount of shipping. The figures showing the amount of tonnage handled by the great ports of the world for 1901 follows:

London	16,889,998	Marseilles	9,629,114
Chicago	16,112,189	Liverpool	11,818,000
New York	16,026,290	Antwerp	15,573,472
Hamburg	14,198,817		

The arrivals and clearances at Chicago last year numbered 17,476; at New York, 14,019. The port of Chicago handles more than three times the tonnage of Boston and four times that of Philadelphia.

Far greater in importance will be the Chicago harbor when the great canal is completed making a shipway from the Great Lakes to the Gulf of Mexico. Already small craft can make the trip, and steam launches and house boats are beginning to take excursion parties from points on Lake Michigan to New Orleans and the Gulf of Mexico. Boats may also go from Chicago to Europe. The Northwestern Steamship Co. ran a line of boats between Chicago and London, Liverpool and Hamburg last year, and will probably resume the service this year. With the widening and deepening of the Northern straits and the lowering of insurance rates there will be an enormous increase in traffic between Chicago and Europe. Thus one may have an idea of what the future Chicago port will be. Cargoes may be shipped from here direct to all ports on the Gulf of Mexico South America, Central America, Mexico and the tropical islands. There will be regular traffic by water between Chicago and St. Louis, Memphis, New Orleans and other Mississippi river points. It will be a steamship terminal for lines between Chicago Europe, and between Chicago and Mississippi river and Gulf of Mexico ports.

The Chicago river, which but a short time ago was a household joke and an object of general ridicule, has thus suddenly sprung into world-wide importance. Everybody used to laugh at how the river would catch fire. This was because of the refuse from the gas works and oil refineries that accumulated on the surface. These fires were once as picturesque and dangerous as they were amusing. Since the sanitary canal has been built the current of the river has been reversed, and the waters that once emptied into the lake are sent coursing down the Desplaines, Illinois and Mississippi rivers to the Gulf of Mexico. The river, excepting the North branch, is now as clear as the clearest mountain stream.

The Century, which calls the Chicago river "the Cinderella of Navigable Streams," and Uncle Sam the "fairy prince" that has come to her aid, says: "Formerly the Chicago river was merely dirty, now it is becoming picturesque in the magnitude of its industries and the strange and startling contrast that it represents. Time was when the wise man avoided it as he would a pestilence (which it closely resembled in some ways), but it has become a panoramic spectacle well worth seeing. * * *

LIQUID FUEL—ITS APPLICATION.*

One of the large Hamburg-American liners on the China route has recently been fitted with the Kortings mechanical sprayers. This is a type practically unknown in America, although several thousand are used in Europe. Their operation is simple and they are noiseless. The furnace must be well lined with brick in order to maintain the temperature. An evaporation of 12.5 pounds is said to be about the limit, although a possible 14 pounds is claimed by some. As perfected by the Kortings, one of the best known engineering firms in Europe, the apparatus consists in general of a pump, two heaters and a burner. The oil under 60 pounds pressure is first heated by the pump exhaust, and then by the steam at boiler temperature, in order to thin it as much as possible. On entering the burner it is given a peripheral motion, and on its discharge from the nozzle, which is the apex of a cone, the centrifugal velocity is sufficient to pulverize it into a fine spray. For small plants without an auxiliary boiler a hand pump is provided, so that by heating the oil with a torch or otherwise, or by using a thin oil, fire can be started when no steam is carried. A modification of the Kortings system, invented by Mr. R. A. Meyer, of Batavia, Java, has been applied to several steamers of the Dutch line, of which he is superintendent. Each furnace front is fitted with a cylindrical extension, the periphery of which contains a series of iron ducts, wound spirally, through which all the air passes, and is heated to a considerable degree by the flame which traverses the interior of the cylinder.

The Italian government has experimented with oil on war vessels, both alone and in combination with coal. Used with the latter, it affords a means of rapidly firing boilers in an emergency, and of securing a greater output of steam. Had our own navy been thus equipped, there would have been less trouble in the Cuban blockade. A given weight of oil occupies less space than a like amount of coal, and it can be stored in places that are usually unavailable for other purposes. With suitable pumping arrangements it can be loaded very rapidly, and without dirt. The use of oil, by reason of this saving in bunker space together with the difference in heat values, double the steaming radius of a vessel. The use of air for spraying once thought essential in marine practice, is being abandoned for steam, which is less trying to the boilers and probably more economical. Most vessels are now fitted for distilling water, and it has been found cheaper to operate the still than the air compressor.

*Excerpt from an address read before the Technical Society of the Pacific Coast, by R. G. Paddock.

EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

Timber and deal chartering again mark the principal feature in this week's business, and in some cases owners have been obliged to make concessions in order to secure charters. The uncertainty as to whether the strike amongst the anthracite coal miners will extend to the bituminous district interferes somewhat with the coal export trade to European markets, consequently fixtures in this direction are limited. Some little business has been done on time basis for short periods, but the rates obtained do not show any improvement.

The reports of the forthcoming cotton crop are up to the present very encouraging, with the prospect of an unusually large yield which, if existing favorable conditions are maintained, is apt to give us a liberal movement during the early stages of the export season. In the meantime, however, practically no chartering has been done for next season, most of the shippers evidently preferring to pursue a waiting policy.

Sail tonnage remains quiet and the only item of interest is the fixture of two vessels for case oil to Australia at respectively 15c. to one port and 16c. to two ports.

Grain—to Liverpool or London 3 cents, Glasgow 2½ cents, Bristol 4 cents, Hull or Leith 4½ cents.

ICE-BREAKING STEAMERS IN SIBERIA.

Ten years ago, from the middle of November to the latter part of March, the port of Vladivostok was practically closed to the outer world. Mail came across from European Russia at long intervals by tarantass. The ice breaker Nadorshnie, or Reliable, was built at Copenhagen, in 1896, and began work here in December, 1897, just as the railroad from Habarovsk to Vladivostok was completed. She is an iron steamer of 1,525 tons; 3,200 horse-power; 4 boilers; length, 198 feet; breadth, 42½ feet; and easily makes 5 knots in 6-inch ice. Besides ice breaking, she can be used as a life-saving craft, and can raise 1,700 tons of water in five hours.

Active service with the boat usually begins at the end of November and lasts into March, varying, of course, with the severity of the season. The ice in Golden Horn harbor averages from 5 to 8 feet.

The Nadorshnie breaks it to the depth of 7 feet, cutting it like cheese, and boasts of having been stopped but once, at a depth of 14 feet.

By the aid of this powerful steamer and her tenders, this harbor is kept open practically the entire year. The smaller boats, three in number, assist in keeping the ice broken near the wharves, and clear a passage eastward toward the docks and arsenals. A wrecking steamer formerly here is now at Port Arthur. The main channel here needs to be kept open only from 12 to 15 miles in the worst winters when the thermometer registers 30° to 40° Reaumur. This winter, one of the coldest in many years, the largest vessels of the volunteer fleet and the new steamers of the Chinese Eastern flotilla have entered, anchored, and departed without trouble. The new steamer Kozu-Maru, from Tsuruga, northern Japan, is now daily expected, to open the new line, which will make direct connection with the Pacific coast. The Chinese Eastern Railway fleet is interested in this line. It will run the year round, and will not be withdrawn during the winter months, like the fleet of the Nippon Yusen Kaisha. In summer, the Nadorshnie puts up for the usual repairs, which are slight. She is always in commission and ready to render service as emergency dictates. She was paid for from the funds of the Great Siberian railroad. The intention is to have another steamer, larger and more powerful.

The ice breaker Baikal, used on Lake Baikal, is built of Siemens & Martin steel. The length is 290 feet; breadth, 57 feet; draft forward, 18 feet; draft aft, 20 feet; speed, 12 knots; displacement, loaded, 4,200 tons. There are three triple-expansion engines of 1,250 horse-power; two engines abaft, separated by a fore and aft water-tight bulkhead, and one engine placed forward to turn the propeller and assist the ice breaker in cutting the ice. The propellers are all four bladed. Fifteen cylinder-type boilers are placed in two compartments divided by a bulkhead. Water-ballast tanks form the double bottom. There are, besides, fore and aft ballast tanks; capacity of all tanks, 580 tons. The fore and aft ballast tanks are to put the steamer into position for crushing the ice. A steel belt runs around the water line. It is composed of sheets 1 inch in thickness, riveted from the inside. To obviate the damage from ice striking the sides at the water line, there are wooden wedges, on top of which logs are placed. This wooden belt is 2 feet thick. The Baikal resembles Nansen's Fram, except in the construction of bow and stern, which are so built that the Baikal can move forward or backward with equal facility while breaking the ice. Twenty-five loaded passenger cars can be placed on the main deck, where there are three pairs of rails. One hundred and fifty passengers can be accommodated in the cabin. The Baikal can cut ice 26 feet thick. It is supposed to be the second largest ice breaker in the world, the Ermak being first.

The second boat, the Angara, is 195 feet in length, 34 feet broad, has a draft of 15 feet and a speed of 12½ knots, triple-expansion engines of 1,250 indicated horse-power, 4 locomotive-type engines and boilers, separated by water-tight bulkheads. The Angara is mainly used to carry passengers. It was put into service in 1900. When the wooden floating drydock, wharves, and a gigantic pier are completed, the whole cost of the lake transportation may be estimated at 5,621,000 rubles (\$2,894,815). In

December, 1900, the Baikal broke her propeller. When this happens, the Angara is not able to break the way herself. Ordinarily, she follows in the wake of the other. The difficulty in the winter transit of Lake Baikal lies in the fact that the entire surface is frozen solid. The broken ice cannot be removed, and there is, of course, no tide to carry it away. The Baikal makes trips from December to April, and she has been known to be a week making the 46 miles across.

R. T. GREENER,
Commercial Agent.

SUN'S AMPLITUDES.

The following approximate amplitudes of the sun's rising or setting will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset, by reversing the east bearing given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the sun's setting. The bearing may be taken when the sun's center is on the horizon, rising or setting. The elements which may be obtained by taking these amplitudes are the quantities known as local attraction, variation and deviation, or the total difference between-compass and true, or geographical bearings.

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
June 12	E. 32° N. = N. 5½ E. = N. E. by E ½ E.		
June 20	E. 32° N. = N. 5½ E. = N. E. by E ½ E.		

LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
June 12	E. 33° N. = N. 5 E. = N. E. by E.		
June 20	E. 34° N. = N. 5 E. = N. E. by E.		

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
June 12	E. 34° N. = N. 5 E. = N. E. by E.		
June 20	E. 35° N. = N. 4¾ E. = N. E. ¾ E.		

LAKE SUPERIOR, LAT. 48° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
June 12	E. 36° N. = N. 4¾ E. = N. E. ¾ E.		
June 20	E. 37° N. = N. 4¾ E. = N. E. ¾ E.		

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied will be the amount of deviation on that course. If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly. If to the left, the deviation is westerly.

MIX-UP IN THE "RULES OF THE ROAD."

A judgment was given last week by Judge McDougall, sitting in Admiralty Court, at Toronto, in the suit of the Georgian Bay Navigation Co., owners of the steamer Carmona, against Capt. James Davidson, owner of the steam barge Shenandoah, and her two consorts.

In June, 1899, one foggy morning in the St. Clair river, the Shenandoah crashed into the Carmona, which was a light passenger boat, and damaged her badly. There was a dispute as to who was to blame, and the American vessels did not touch any Canadian points for a long time because of the fear of being libelled for damages. Finally, a year ago, one of the consorts got stranded in Canadian waters and suit was entered. T. Mulvey, Esq., of Toronto, acted for the Carmona, and F. A. Hough, Esq., of Amherstburg, for the defendants.

The evidence showed that there was a conflict of rules. The Canadian law provides that in narrow channels vessels must take the starboard side, that is keep to the right. The American rules simply say that descending vessels shall have the right of way and the Carmona was descending. In defense a local rule was set up providing that upbound vessels should take the starboard side at that point, but the judge held that this was not as well known as the regular rule of the road and found for the Carmona, assessing the damages against the Shenandoah and her tows at \$2,183, and costs.

NOTES.

THE Navy Department has been informed by Neafie & Levy, the builders of the protected cruiser Denver, that they will launch that vessel on June 21. The Denver is the second of the six seventeen knot cruisers of her class to be launched; the Cleveland, built at the Bath works, having already been floated.

The German fleet has been making trials with different colored paint for the outsides of torpedo boats. The authorities are dissatisfied with the deep black color which has hitherto been in use, but they have discovered that no color is suitable for all seas. It has now been decided to employ a gray-brown color as being the least noticeable in the Baltic and other northern waters, a change is contemplated in the color of the paint, used for German iron-clads, bluish gray being found the most serviceable both by day and by night.

TAKING a day for pleasure, he (the Englishman) attends the races, and sees the highest stakes won by an American horse, ridden by an American jockey. Looking over his evening paper, he reads of the placing in American ship-yards of orders for American style battleships for European as well as Asiatic nations, and learns that the scene of the coronation of the King of England is to be painted by an American artist, and that the forty thousand gold, silver and bronze medals, ordered by the command of the King, to commemorate his coronation, are being made in Massachusetts.—From "America's Invasion of Europe," by Geo. H. Daniels, in Four-Track News, for June.

THE 125-ton steam hammer erected at the works of the Bethlehem Steel Co., South Bethlehem, Pa., in 1892—the largest steam hammer in the world—is being demolished. This hammer, as visitors who saw the full-sized model at the World's Fair, in Chicago, in 1893, will remember, was a vertical-acting steam engine with a heavy ram at the lower end of the piston rod. The internal diameter of the steam cylinder was 76 in. and the normal stroke of the piston 16 ft., the maximum stroke being 20 ft. The total weight of the piston, the piston rod, and the ram was 125 tons. The hammer was operated by admitting steam below the piston to raise the ram, which was then permitted to drop by gravity. The machine stood 90 ft. high and was 38 ft. on the longest dimension across the base. The experience with this hammer was rather unsatisfactory, the action of the blow being so rapid that the compression of large pieces of metal could not be distributed uniformly through the mass. As a result, internal strains were set up in the metal, tending to the formation of flaws. For heavy forging it was found that hydraulic presses were more satisfactory, the pressure being applied slowly and continued uniformly to the end of the stroke, working the interior of the metal as thoroughly as the outside and making the forging homogeneous. As a result of the competition between these two classes of machines for heavy steel forging this large steam hammer has been standing idle for the past six or seven years, and finally it was decided to take it down and consign it to the scrap heap.—Railway Review.



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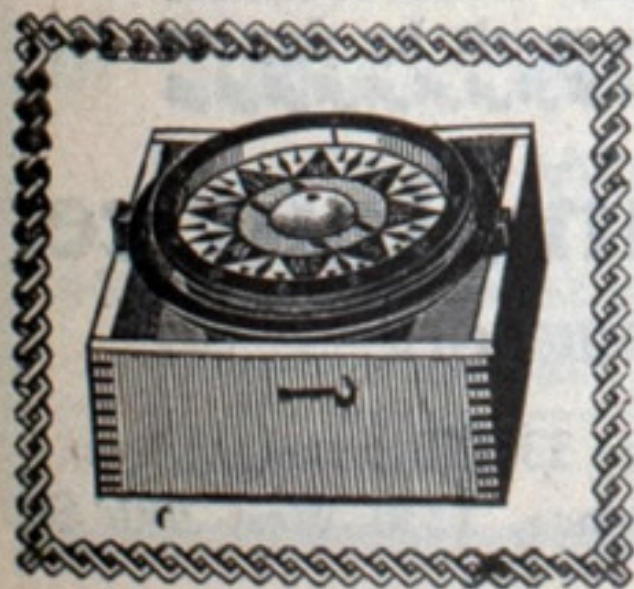
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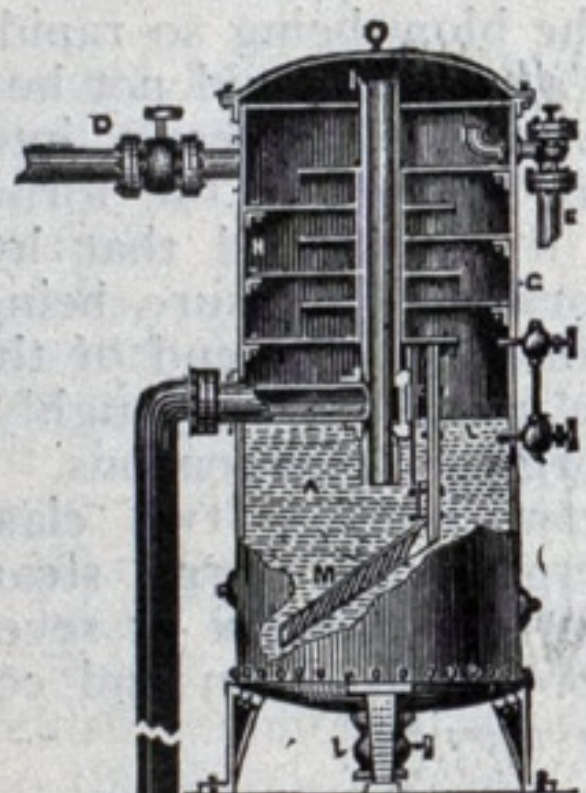
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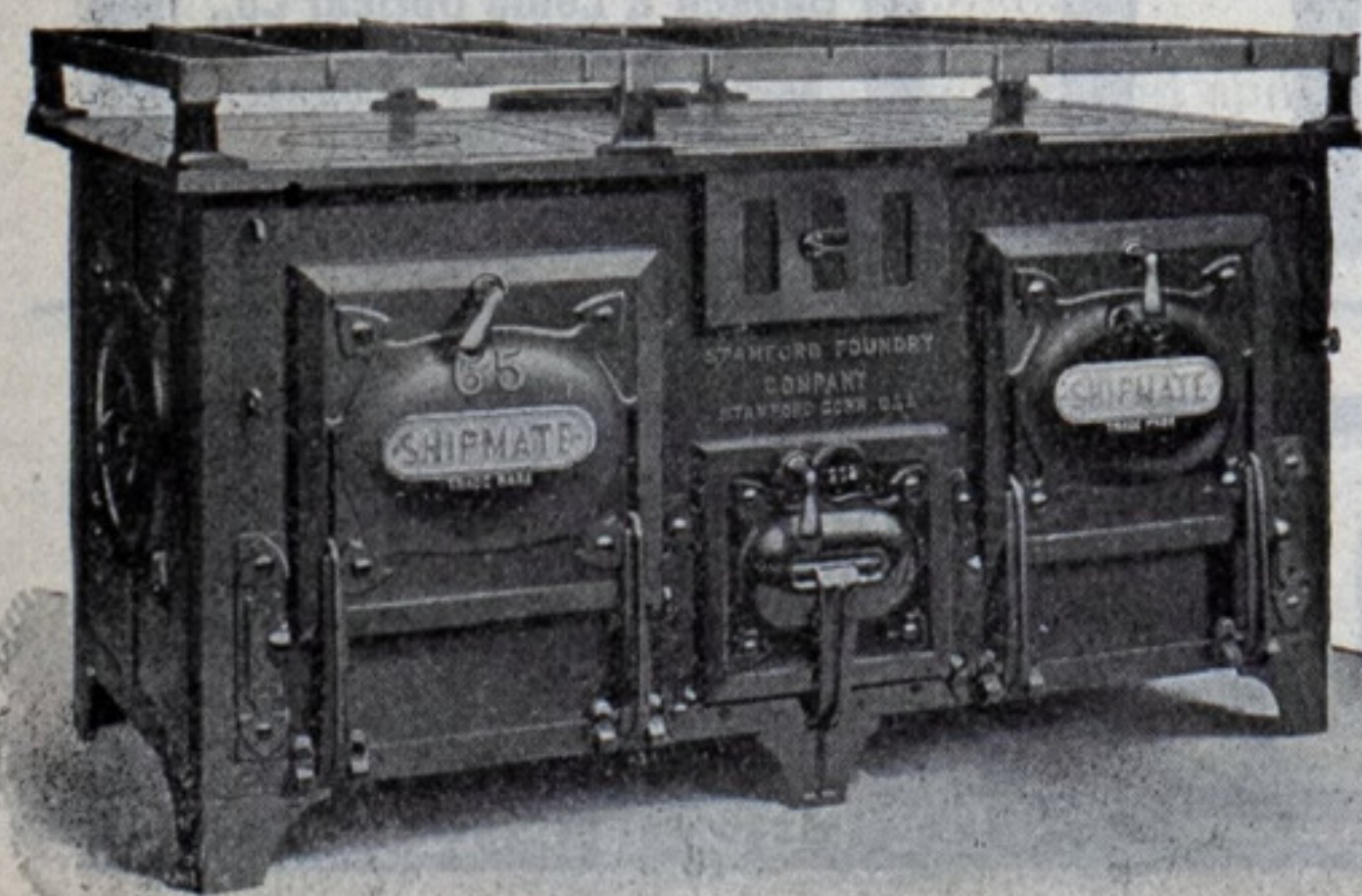
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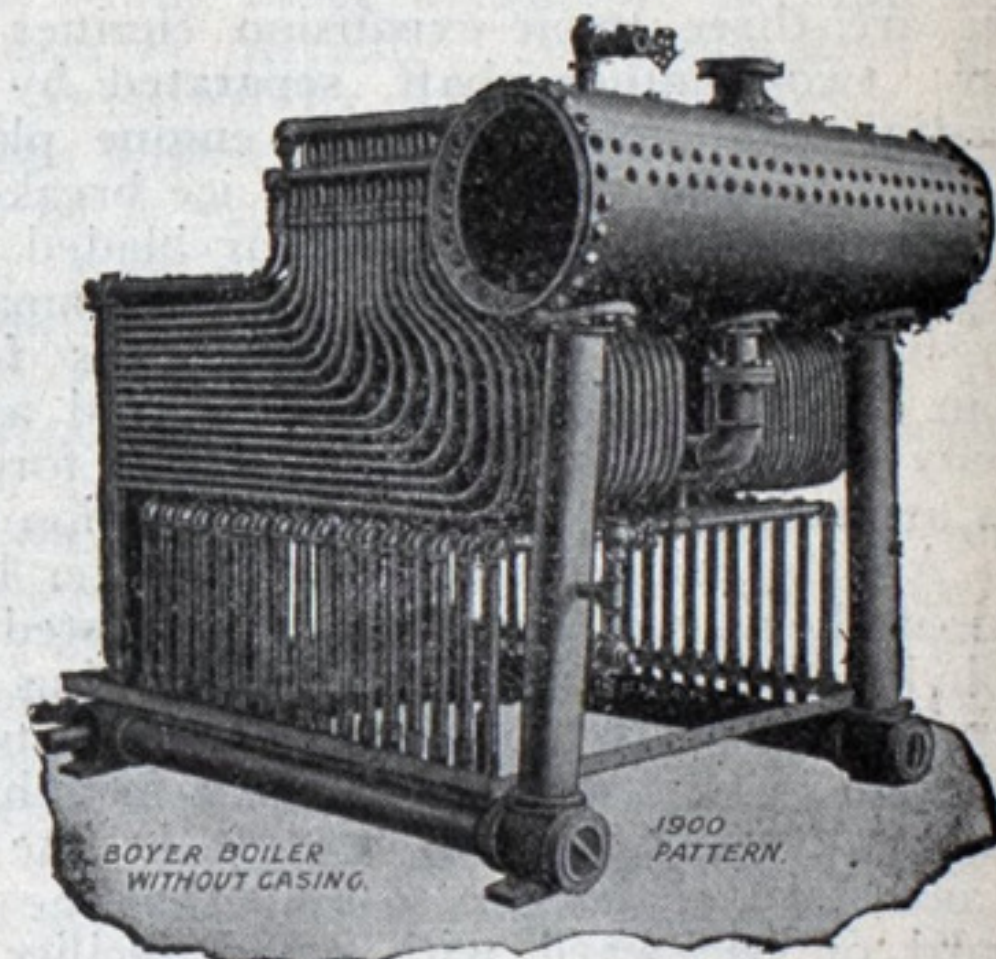


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A CANADIAN COAST SURVEY BOAT AND ICE BREAKER.

Messrs. Fleming & Ferguson, engineers and shipbuilders, Paisley, Scotland, have launched from their yards the twin-screw steamer *Druid*, built to the order of the Canadian government. This vessel is for coast survey service. She is fitted with the Pintsch's gas plant system for supplying buoys and light-ships, and is also intended to be used as an ice-breaker, the plating being double and framing strengthened to suit this work. Mr. H. M. Murray, Glasgow, represented the Dominion government and Mr. Jas. Mollison, chief engineer surveyor to Lloyd's, for the classification of the craft. Messrs. Fleming & Ferguson have in hand another survey steamer for the Canadian government, fitted with cable-laying apparatus, and intended for laying cables between the mainland and islands.

MERITED PRAISE FOR A CLEVELAND FIRM.

Munising is beginning to discover that it was a lucky day for the place when the Cleveland Cliffs Iron Co. acquired its present holdings there, and in the territory tributary to the village. Never before were the prospects so encouraging. Marquette is also indebted to the same corporation for a fresh start that ensures it greater growth and prosperity in the future, and the same is true of the city of Negaunee. There is not another mining company in the upper peninsula doing as much to promote the establishment of valuable industries at home as is the Cleveland Cliffs Iron Co. under its present far-sighted and progressive management.—The Mining Journal, Marquette.

LAKE SUPERIOR LEVELS.

According to J. H. Darling, U. S. Asst. Engineer, Duluth, the stage of Lake Superior in May, 1902, by the U. S. gauge at Houghton, Mich., was 0.61 feet above low water datum. This is 0.34 higher than for the preceding month, showing a rising stage, and the amount of rise is nearly the normal for the period from April to May, which is 0.30 feet. The rainfall at Duluth was 3.89 inches, according to Local Forecast Officer Richardson, which is a little in excess of the average for May.

The May stage of the lake, above noted, was 0.04 ft. lower than in May a year ago, or practically the same. It is 0.39 ft. higher than the average May stage for a period of 26 years.

FLOTSAM, JETSAM AND LAGAN.

Joseph Douglas has been appointed assistant keeper of the light-house at Grand Haven, taking the place of Charles Burke, who has been appointed keeper of the Potawatamie light, Wisconsin.

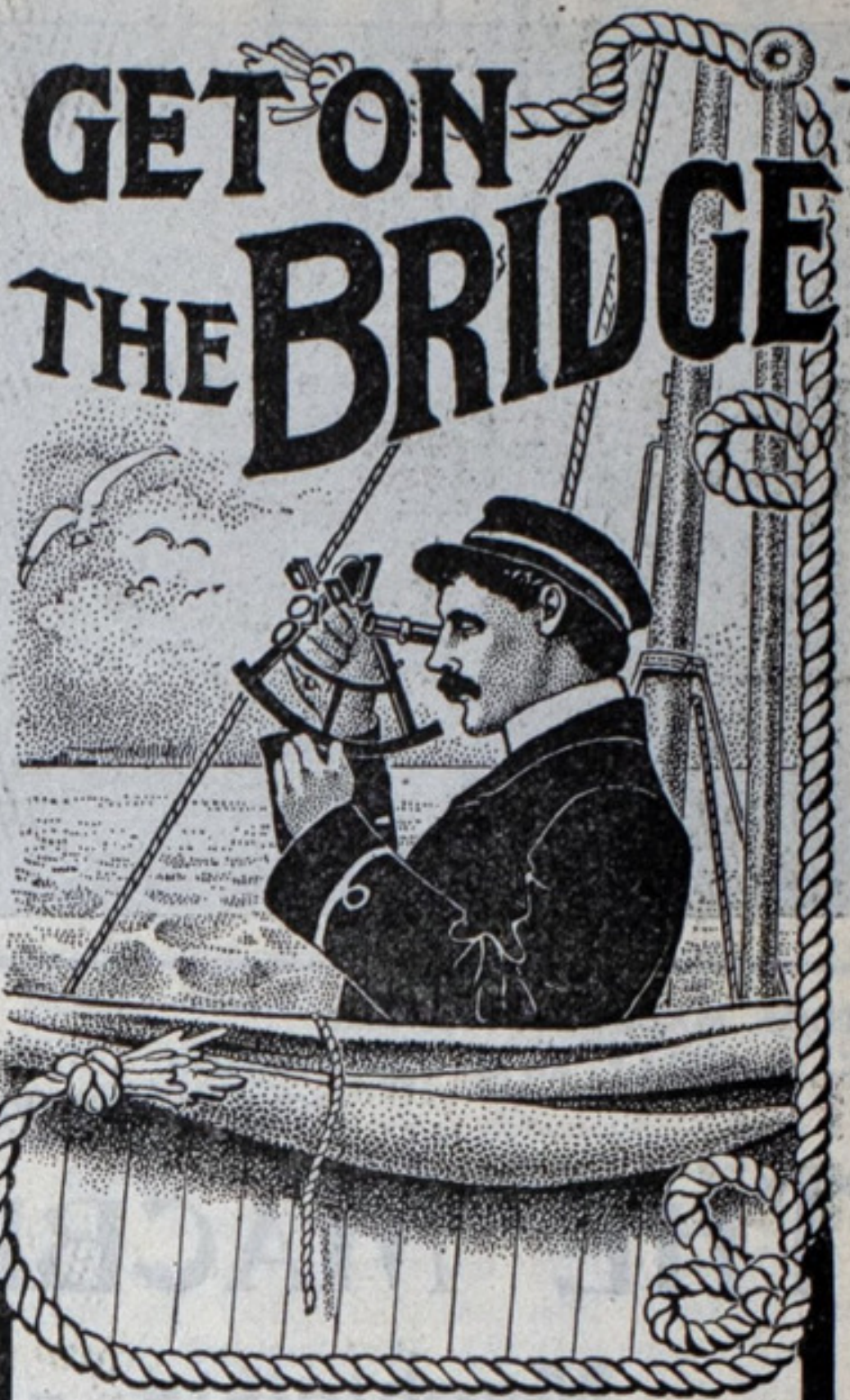
On the Ark—"This is tough luck," said Ham, mournfully, as he leaned out over the side of the ark. "What's wrong now?" queried Shem. "Why, all this water to fish in," replied Ham, "and only two fishing worms on board."—Ohio State Journal.

In jettisoning cargo to lighten or relieve a ship or wreckage, merchandise, etc., therefrom, that part which floats is known as flotsam, that which sinks is called jetsam and that which is submerged or sunk and buoyed is lagan or logan. This is in explanation of the regular caption kept standing in the columns of the MARINE RECORD.

A good story is told of an Irishman, more patriotic than clever, who enlisted in one of the smart cavalry regiments. The fencing instructor had experienced rather a difficult job in the matter of explaining to him the various ways of using the sword. "Now," he said, "how would you use the sword if your opponent fainted?" "Bedad," said Pat, with gleaming eyes, "I'd just tickle him with the point to see if he was shamming."—St. James's Gazette.

When William E. Chandler was Secretary of the Navy he issued an order that officers should not permit their wives to reside at the foreign stations to which their husbands were attached. The order was promptly rescinded upon the receipt by the Secretary of the following from Commodore Fyffe, in command of the Asiatic squadron: "It becomes my painful duty to report that my wife, Eliza Fyffe, has, in disobedience to my orders, and in the face of regulations of the department, taken up her residence on the station, and persistently refused to leave."

Marine boilers of every type are illustrated and described in the pocket-size catalogue issued by the Kingsford Foundry and Machine Works, Oswego, N. Y. This company makes Scotch boilers with one, two and three furnaces, the improved Redfield marine boiler, the two-furnace Blake marine boiler, the two-furnace compact and the ellipse marine boilers. These boilers are installed on many vessels. In connection with the new modern boiler plant of this company, there is an extensive machine shop and foundry for turning out marine engines of various styles. A copy of this and the large catalogue published by the Kingsford Works will be sent upon application.



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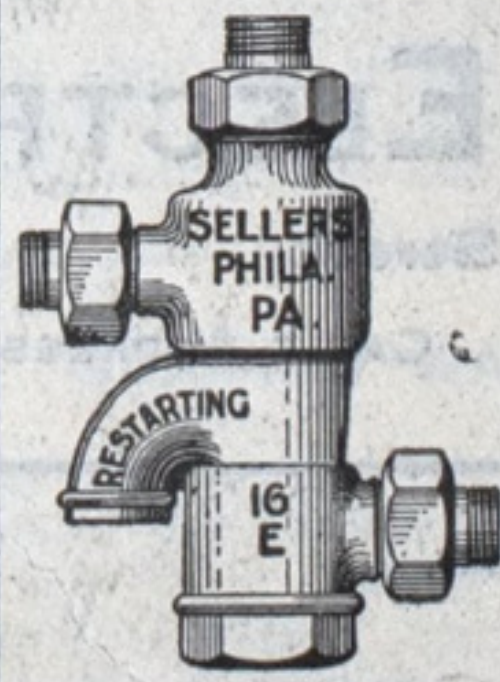


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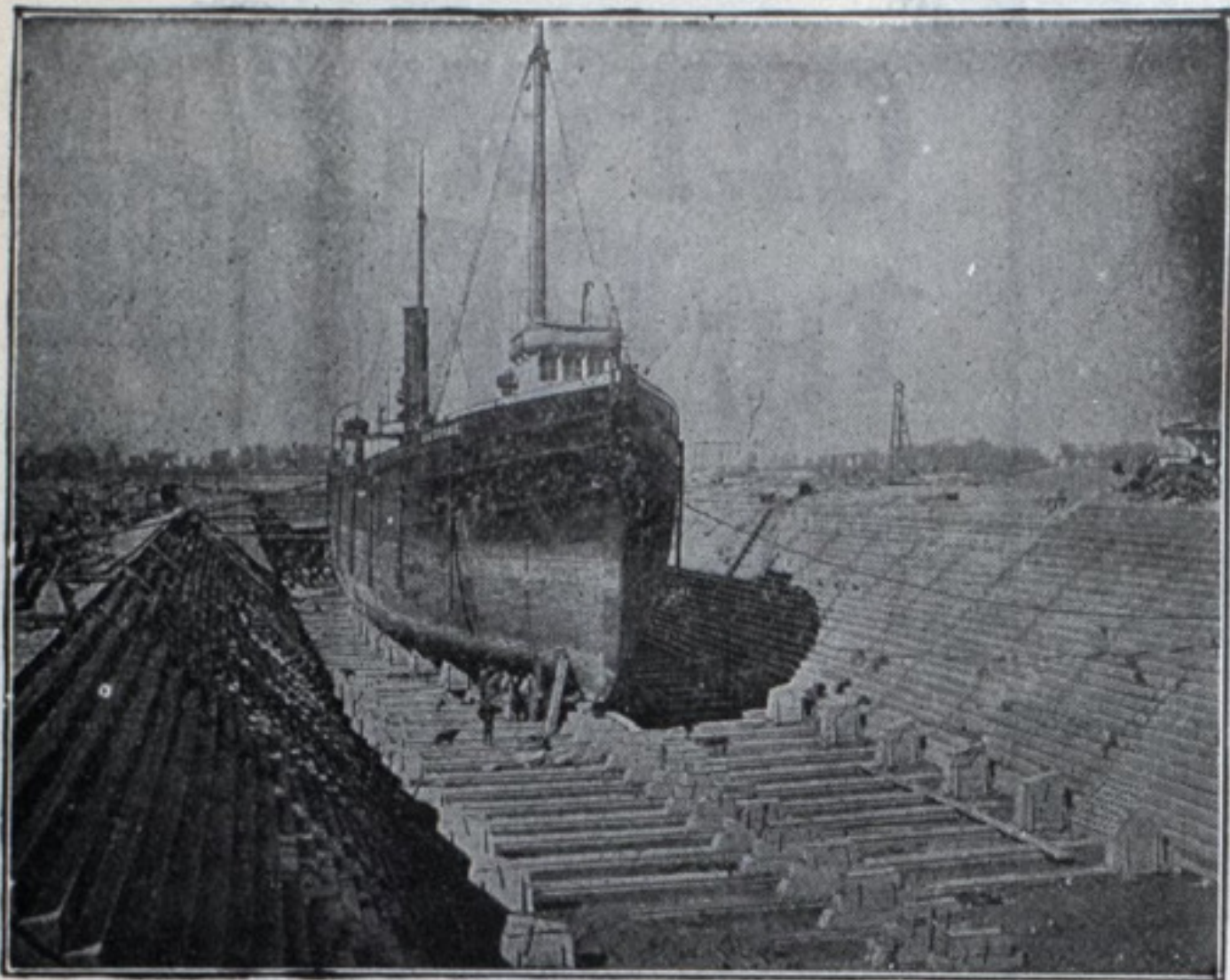
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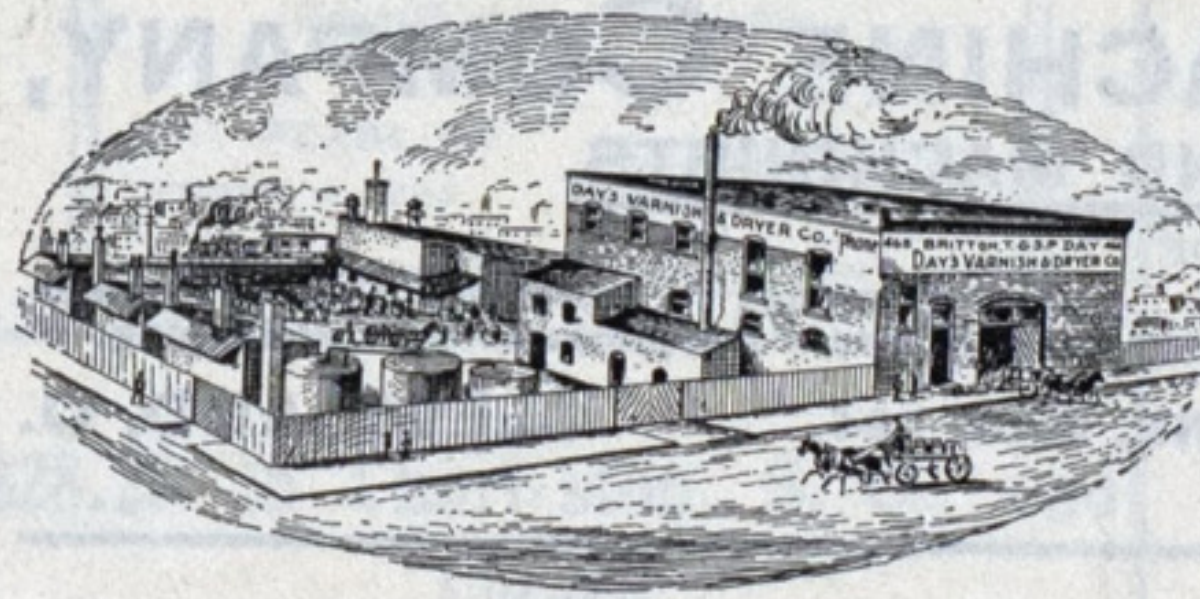
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